WPP 001/4 PER 10,0c 1. Edition

toil-ISO 4113

PES 8 MW 100/720 RS 1019 RQV 500-1200 MW 29 0 403 448 106

companyerkins engine TV 8.640 6R 185 kW (252 PS)

1 - 8 - 7 - 5 - 4 - 3 - 6 - 2

 $0 - 45 - 90 - 135 - 180 - 225 - 270 - 315 \pm 0.05(0.75)$

+ Port-closing mark on rear side

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel injection Pump Settings

Port closing at pres	stroke	3,00-3,10 -(2,95-3,15)	mm (from BDC)	nm (from BDC) RW 9.0-12.0 mm							
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6					
1180	12,2+0,1	9,9 - 10,1	0,35(0,6)								
500	5,8-6,0	0,95 - 1,35	0,35(0,59)							
800	12,2+0,1		0,5 (0,7)								

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Up	per rated s	peed			Intermediate	rated sp	ed		Lower rated	speed		Sliding e	leeve travel
def	lection	rev/min Control rod travel	Control rod travel	•	Degree of deflection of control		Control rod travel)	Degree of deflection of control		Control rod travel		
lev		mm	rev/min (20	lever	rev/min	mm (①	lever	rev/min	mm ③	rev/min	
<u> </u>		2	3		4	5	6		7	8	9	10	11
L	max.	1200	15,2-17	,8	-	-	-		ca. 14	500	5,8-6,0		
		1400	0,1-1,	0						100	min.7,5		
1	ca.64	11,2	1220-12	25						660-7	20 = 2,0		
		4,0	1255-12	60					③				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo Test oil ten		Rotational-speed 2b fimitation intermediate speed	Fuel deli- high idle :	very characteristics (5e poed (5b)	Starting Idle switching	. •	Torque- travel	control (5)
rev/min	cm³/1000 strokes	rev/min 4	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
1180	99,0-101,0	1220 - 1225+	800	93,0-97,0	100	19,0-21,0RW		
	(97,0-103,0)			(91,0-99,0)		min.140,0		
A)]	

Chucking values in brackets

* 1 mm less control rod travel then col. 2

Port closing and TDC markings

Comb. - No.

*camshaft between port closing and TDC at control-rod travel 10,5 mm 15°

AL

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Test Specifications Fuel Injection Pumps (1)PP 001/4 VOL 4,5 e and Governors 1. Edition

estell-150 4113

PES 4 MW 100/320 RS 1102 0 403 444 107

RQV 300-1100 MW 39-5

companyol vo engine D 45 85 kW

1-3 - 4 - 2 0-90-180-270 ± 0,50 (0,75)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres		75-2.95)	mm (from BDC)	bei RW =	9,0-12,0 mm	
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,1+0,1	11,3-115	0,35(0,6)			
300	5,8-5,9	1,3-1,7	0,35(0,55)		. •
1000	12,1+0,1		0,55(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed	1	Inte	ermediate	rated sp	ed	Lower rated	speed		Sliding sleeve travel		
deflection of control	rodtravel	travel C	ンdefi	gree of fection control er	rev/min 5	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm 3		mm 11	
max.	1200 1350	15,2-17,8 0 - 1,0	3				ca.10	300 100	5,6-5,7 min. 8,1			
ca. 43	11,1 4,0	1140-1150 1210-1240						320-0	550			
			\perp				3					

Torque control travel a =

mπ

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter		Rotational-speed 2b limitation intermediate speed	Fuel deli- high idle s		Starting idle awitchir	. 0	Torque- travel	control 5	
rev/min	cm³/1000 strokes	rev/min 49	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm	
1	2	3	4	5	6	7	8	9	
700	113,0-115,0 (111,0-117,0)		1000	112,0-116,0 (110,0-118,0	300	19,0-21,0 mm RW 130,0-140,0 (127,0-143,0 13,0-17,0 (10,5-19,5) -220 (80-250)			

Checking values in brackets

^{* 1} mm less control rod travel than col. 2

WPP 001/4 VOL 4,5 g

1. Edition

Testoil-ISO 4113

PES 4 MW 100/320 RS 1102 RSV 300-1000 MW 1 A 315

0 403 474 001

supersedes Volvo

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings
2,80-2,90
Port closing at prestroke (2,75-2,95) mm

mm (from BDC) bei RW=9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm /100 strokes 3	Difference cm ¹ / 100 strokes 4	Control resitravel	Fuel delivery cm1/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,1+0,1	11,3-11,5	0,35(0,6)			
300	5,6-5,7	1,3-1,7	0,35(0,55)			7
1000	12,1+0,1		0,55(0,7)			
L						

Adjust the fuel delivery from each outlet according to the values in E

B. Governor Settings

Degree of deflection of control lever	r rated speed Control rod travel mm	rev/min Control rod travel mm rev/min 3	Intermed	diate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm	3 To	rque control Control rod travel mm
loose	800	0,3-1,0				ca.12	300 300	5,1-5,2 5,6-5,7		
ca.52	11,1 4,0 0,3-1,	1040-1050 1055-1085 7 1200					360-420			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop emp 40°C (104°F)	6 Rotational- speed limitat		uel delivery naracteristics	Starting I	fuel delivery 5	4 Idle stop		
rev/min	cm /1000 strokes	Note changed to) rev/min 3	rev/min 4	cm ¹ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min	Control rod travel mm	
700	113,0-115,0 (111,0-117,0)	1040-1050*	1000	112,0-116,0 (110,0-118,0)	300	13,0-17, (10,5-19,	0 300 5)	5,6-5,7	

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 KHD 13,4 a

1. Edition

engine: BF 8 L 513

222 kW

supersedeg

company:KHD

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PE 8 MW 100/720 LS 1118 RQV 300-1150 MW 56

0 403 548 007

1-8-7-2-6-5-4-3

 $0-45-90-135-180-225-270-315 \pm 0,50 (0,75)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	itroke	3,10-3,20 (3.05-3.25)	mm (from BDC)	RW = 9.0	RW = 9.0-12.0 mm					
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6				
700	12,5+0,1	13,3-13,5	0,35(0,6)							
300	6,7-6,8	1,6-2,0	0,35(0,55							
1150	11,9+0,1		0,5 (0,7)							
450	11,4+0,1									

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	speed		11	ntermediate	rated sp	eed	Lower rated	speed	•	Sliding sleeve travel		
Degree of deflection of control lever	rev/min Control rod travel mm 2	mm			rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3	rav/min 10	(1) mm	
max.	1175 1400	15,2-17,8 0-1					ca. 18	300	6,7-6,8			
ca. 55		1190-1200 1270-1300						320-4	60			
							3					

Torque control travel = 0,6 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load (Control-re Test oil te		limitation intermediate speed	high idle :	very characteristics (5e speed (50)	Starting Idle switchin		Torque-control 5 travel Control roc travel		
rev/min	cm ³ /1000 strokes .	rev/min 40	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	mm	
1	2	3	4	5	6	7	8	9	
LDA 700	0,8 bar 133,0-135,0 (131,0-137,0)	1190-1200*	LDA 1150 LDA 450	0,8 bar 129,0-131,0 (126,0-134,0) 0 bar 104,0-106,0 (102,0-108,0)		19,0-21,0 mm RW 140-150	750	11,9+0, 12,5+0, 12,1+0,	

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

KHD 13,4 a -2-

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
Pump LS 1118 with MW 56	0,8	0,36 0,26 0	12,5-12,6 12,2-12,3 11,6-11,7 11,4-11,5

Testoil-ISO 4113

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 MB 11.8 e

7. Edition

PE 6 P 100 A 720 RS 15

RQ 250/1100 PA 269 R

PA 278 R* (2)

supersedes 3.83

Komb.-Nr. 0 401 846 329 (1) 0 401 846 331 (2)

company: Daimler-Benz OM 355

* 278 R -

Functional check of roll-start block: Adjust solenoid until control rod is 1;5-2,5 mm from Stop.
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Bump Settings

Port closing at prestroke

2,80-2,90

mm (from BDC) RW 9,0-12,0 mm

Rotational speed rev/min	Control rod travel	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	13,0+0,1	11,9-12,1	0,3(0,6)			
250	7,4-7,6	1,7-2,3	0,3(0,5)]

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	g of slider ick	①	Full-load s	•	-	cifications (4)	Idle spec	•		cifications (5)	Torque o	control (3)
rev/min	Control rod travet mm 2	,		red travel mm	Control red travel rmm	rev/min	rev/min 7	Control rad travel rnm 8	rev/min 9	Control rod travel	rev/min 11	Control rod travel
600	15,6-1	5,4	600	16,0		1125-1145 1195-1230 0-1,5	250	5,0	250	nin.7,0 5,9-6,1 425 = 2,0	•	•

Torque-control travel on flyweight assembly dimension a =

1125-1145 min"

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ury characteristics	Starting did speci	fuel delivery 6
rev/min	cm³/-1000 strokes	rev/min 3	rev/min	cm ³ /~1000 strokes 5	rav/min	cm ³ /1000 strokes:/ mm 7
1100	118,5-120,5 (116,5-122,5)	450	450	101,0-105,0 (99,0-107,0)	100	140,0-160,0 (136,0-164,0)

Checking values in brackets

40

WPP 001/4 KHD 36,6 a

1. Edition

PE 8 P 100/900/5 RS 114 (1)
PE 8 P 100/900/5 RS 115 (2)
PE 8 P 100/920/5 RS 115 RSUV 300-750 P 9/322 R (3)
Cam sequence and angular cam spacing, Instructions 2
Note VDT-I-401/103

Supersedes KHD
F 16 M 716
Komb.-Name 0 401 818 006 (1)
0 401 818 008 (2)
0 401 878 033 (3)

A. Fuel Injection Pump Settings

Port closing at prestroke

(1) (1) 2.0-2,1 (1,95-2,15)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm //100 strokes 3	Difference cm ^{-/} 100 strokes 4	Control rod travel mm 2	Fuet delivery cm ¹ /100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1000	12,0	12,4-13,2	0,5			
600 600 600 200	9,0 12,0 15,0 9,0	5,4-6,4 11,4-12,7 17,5-18,8 3,6-4,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	r rated speed Control rod travel mm 2		Intermed	diate rated	speed 6	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm 9	3 to	rque controt Control rod travet mm 11
ca.68	750 770 800	16,0 12,5 6,2	witho	ut aux	oliar	ca. 31 y spring	300 60 300	8,0 19-21 7,7-8,3	730 400 320	0 0 1,2-1,8
29	785 800 820	7,4-10,4 4,8-7,8 1,8-4,8	with	auxili	ary s	pring		4,6-6,2 0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b ^{Fu}	it load stop	6 Rotational- speed limitat		iel delivery paracteristics	Starting fuel delivery 5 4a Idle stop			
Test oil te rev/min 1	emp 40°C (104°F) cm*/1000 strokes 2	Note changed to) rev/min 3	rev/min	cm ⁴ /1000 strokes 5	rev/min	cm ¹ /1000 strokes	rev/min	Control rod travel mm
	run in tandem ull-load delive	ry from VDT	-1-401	/103	-	-	•	-
	,							

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

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Cam sequence and angular cam spacing.

PE 8 P..RS 114:

1- 8- 4- 7- 3 - 6 - 5 - 2 0-30-75-90-135-165-225-300° ± 0,5° (± 0,75°)

PE 8 P..RS 115:

1- 5- 4- 3 - 8 - 7 - 2 - 6 0-45-75-135-210-270-300-345° ± 0,5° (± 0,75°)

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WPP 001/4 KHD 36.6 a 1

1. Edition

En

PE 8 P 100 A 900/5 RS 114 (1) PE 8 P 100 A 920/5 RS 115 RSUV 300-750 P 9/322 R (2)

supersedr KHD company F 16 M 716

Cam sequence and angular cam spacing, Instructions 2
Note VDT-I-401/ 103

Komb.-Nr. 0 401 818 011 (1)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

0 401 878 046 (2)

A. Fuel Injection Pump Settings

Port closing at prestroke

2,0-2,1

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ^{-/} /100 strokes 3	Difference cm ^{-/} 100 strokes 4	Control rod travel mm	Fuel delivery cm ¹ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,0	12,4-13,2	0,5			
600 600 600 200	9,0 12,0 15,0 9,0	5,4-6,4 11,4-12,7 17,5-18,8 3,6-4,6				

Artjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	r rated speed Control rod travel mm	rev/min Control rod travel mm rev/min 3	Intermed	diate rated	speed 6	Control- tever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm	3 To	rque control Control rod travel mm
ca.68	750 770 800	16,0 12,5 6,2	with	out au	ıxol ia	ca. 31 ry sprin		8,0 19-21	730 400 320	0 0 1,2-1,8
29	785 800 820	7,4-10,4 4,8-7,8 1,8-4,8	with	auxil	iary	spring	300 350 470	7,7-8,3 4,6-6,2 0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

9	ull-load stop emp_40°C (104°F)	6 Rotational- speed limitat		uel delivery naracteristics	Starting t	luel delivery 5	(49 ld	e stop
rev/min	cm/1000 strokes	Note changed to) rev/min 3	rev/min 4	cm/1000 strokes 5	rev/min 6	cm/1000 strokes 7	rev/min 8	Control root travel mm 9
Pumps Take	run in tandem full-load deliv	ery from VD1	-1-40)/103	-	-	•	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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6.84

AAO

Cam sequence and angular cam spacing.

PE 8 P..RS 114:

1- 8- 4- 7- 3 - 6 - 5 - 2 0-30-75-90-135-165-225-300° - 0,5° (- 0,75°)

PE 8 P..RS 115:

1- 5- 4- 3 - 8 - 7 - 2 - 6 0-45-75-135-210-270-300-345° ± 0,5° (± 0,75°)

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WPP 001/4 KHD 36,6 a 3

1. Edition

Εn

PE 8 P 110 A 900/5 RS 114 (1)
PE 8 P 110 A 920/5 RS 115 RSUV 300-750 P 9 A 322 R (2)
Values only apply to test nozzle-and-holder
assembly 0 681 443 022 and fuel-injection test tubing 1 680 750 060

Supersedr KHD
company F 16 M 716
Komb.-NPine 0 401 818 012 (1)
0 401 878 077 (2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (1,95-2,15)

Cam sequence and angular cam spacing, Instructions 2

Rotational speed rev/min 1	Control rad travel mm 2	Fuel delivery cm*/100 strokes 3	Difference cm ¹ / 100 strokes	Control rod travel mm 2	Fuel delivery cm*/100 strokes 3	Spring pre tensioning (torque-control valve) mm 6
1000	12,0	18,8-19,6	0,8			
600 600 600 200	6,0 12,0 15,0 6,0	3,4-4,4 18,2-19,5 26,7-28,4 0,9-1,9				
			7			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	r rated speed Control rod travel mm	rev/min Control rod travel mm rev/min 3	Interme	diate rated	speed 6	Control- lever deflection in degrees 7	Lowe rev/min 8	Control rod travel mm	3 To	Control rod travel mm
ca.68	750 770 800	16,0 12,5 6,2	witho	out au		ca. 31 y spring		8,0 19-21	730 400 320	0 0 1,2-1,8
29	785 800 820	7,4-10,4 4,8-7,8 1,8-4,8	with	auxil	iary s	pring	300 350 400	7,7-8,3 1,4-4,2 0-1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

W	il·load slop emp_40°C (104°F)	6 Rotational- speed limital		iel delivery paracteristics	Starting I	luel delivery 5	(4a) Idi	e stop
	cm/1000 strokes	Note changed to) rev/min 3	rev/min 4	cm ¹ /1000 strokes 5	rev/min	cm ¹ /1000 strokes	rev/min	Control root travel mm
	s run in tanden full-load deli		DT-1-4	01/103	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than cot 2

6.84

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Cam sequence and angular spacing:

PE 8 P..RS 114:

1-8-4-7-3-6-5-2 0-30-75-90-135-165-225-300° ± 0,5° (± 0,75)

PE 8 P..RS 115:

1- 5- 4- 3 - 8 - 7 - 2 - 6 0-45-75-135-210-270-300-345° ± 0.5 ° (± 0.75 °)

Note VDT-I-401/103!

WPP 001/4 KHD 36,6 a 4

1. Edition

PE 8 P 110 A 920/5 RS 115 RSUV 300-750 P 9/322 R

supersedes-

 $0-45-75-135-210-270-300-345^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$ Values only apply to test nozzle-and-holder

company KHD engine F 16 M 716

assembly 0 681 443 022 and fuel-injection test tub ing 1 680 750 060
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Komb.-Nr. 0 401 878 080

Note VDT-I-401/ 103

A. Fuel Injection Pump Settings

Port closing at prestroke

2,0-2,1 (1.95-2.45)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel	Fuel delivery cm //100 strokes 3	Difference cm ^{-/} 100 strokes 4	Control rod travel mm	Fuel delivery cm ¹ /100 strokes	Spring pre tensioning (torque-control valve) mm
1000	12,0	18,4-19,6	0,8			
600 600 600 200	6,0 12,0 15,0 6,0	3,4-4,4 18,2-19,5 26,7-28,4 0,9-1,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	r rated speed Control rod travel mm 2 .	Prev/min Control rod travel mm rev/min 3	intermed	diate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm 9	3 to	rque control Control rod travel mm
ca.68	750 770 800	16,0 12,5 6,2	with	out au	xolia	ca. 31 ry sprin	300 300 300	8,0 19-21	730 400 320	0 0 1,2-1,8
28	785 800 820	7,4-10,4° 4,8-7,8 1,8-4,8	with	auxil	iary :	spring	350 400	7,7-8,3 1,4-4,2 0-1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	speed limitat	CI	naracteristics	Idle	luel delivery 5	(4a) Idle stop	
est oil temp 40°C (104°F) ev/min cm/1000 strokes 2	Note changed to) rev/min 3	rev/min	cm ¹ /1000 strokes 5	rev/min	cm ¹ /1000 strokes	rev/min	Control root travel mm
mp runs in tander ke full-load deli	n with PE 8 P ivery from VDT-	00/90 I-401	0/5 RS 114 - 0 /103	- 401 818	- 012	-	-

Checking values in brackets

* 1 mm less control rod travel than cot 2

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WPP 001/4 KHD 36,6 b

1. Edition

Εn

PE 8 P 100/920/5 RS 115 RSUV 300-900 PO/327R Komb.-Nr. 0 401 878 036
1-5-4-3-8-7-2-6
0-45-75-135-210-270-300-345° ± 0,5° (± 0,75°)
Note VDT-I-401/103
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes – KHD company F 16 M 716

A. Fuel Injection Pump Settings

Port closing at prestroke

2,0-2,1 (1,95-2,15)

mm (from BDC;

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm*/100 strokes 3	Difference cm '/ 100 strokes 4	Control rod travel mm	Fuel delivery cm*/100 strokes 3	Spring pre tensioning (torque-control valve) mm 6
1000	12,0	12,4-13,2	0,5			
600 600 600 200	9,0 12,0 15,0 9,0	5,4-6,4 11,4-12,7 17,5-18,8 3,6-4,6	·			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	r rated speed Control rod travel mm		Interme	ediate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm	3 To	rque control Control rod travel mm
ca. 65	900 930 950	16,0 10,5 6,0	with	out au	xoliar	ca. 23 y spring	300 70	8,0 19-21	880 500 330	0 0 1,2-1,8
29	930 960 1050	9,5-12,0 4,2-6,7 0-1,0	with	auxil	iary s	pring	300 350 440	7,7-8,3 3,5-5,5 0-1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ell load stop	6 Rotational- speed limitat		rel delivery paracteristics	Starting (uel delivery 5	(4a) Idi	e stop
rev/min	cm /1000 strokes 2	changed to) rev/min 3	rev/min	cm ¹ /1000 strokes 5	rev/min	cm ¹ /1000 strokes 7	rev/min 8	Control rod travel mm 9
Pump Take	runs in tandem full-load deliv	with PE 8 P very from VD	100/9 T-1-40	00/5 RS 114 - 0 11/103	- 401 8	18 006	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.84

BOSCH

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung.
1980 by Robert Bosch GmbH. Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprimé en République Fédérale d'Atlemagne par Robert Bosch GmbH.

WPP 001/4 KHD 36,6 b 1

1. Edition

PE 8 P 100 A 920/5 RS 115 Komb.-Nr. 0 401 878 047 1-5-4-3-8-7-2-6 RSUV 300-900 P0/327R

supersedes = KHD company

F 16 M 716 engine

 $0-45-75-135-210-270-300-345^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$

Note VDT-I-401/ 103

A. Fuel Injection Pump Settings 2,0-2,1

Port closing at prestroke

(1,95-2,15)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm*/100 strokes 3	Difference cm ^{-/} 100 strokes 4	Control rod travel mm	Fuel delivery cm*/100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1000	12,0	12,4-13,2	0,5			
600 600 600 200	9,0 12,0 15,0 9,0	5,4-6,4 11,4-12,7 17,5-18,8 3,6-4,6				

Arijust the fuel delivery from each outlet according to the values in

B. Governor Settings

Uppe Degree of	r rated speed Control rod	rev/min Control rod	Interm	Intermediate rated speed Confir			Lowe	er rated speed	3 10	orque control Control rod	
dellection of control lever	travel mm	travel mm rev/min				lever deflection in degrees	rev/min	travel mm	rev/min	iravel mm	
1	2	3	4	5	6	7	8	9	10	11	
ca. 65	900 930	16,0 10,5	1		. 3	ca. 23	300	8,0	880	0	
	950	6,0	with	out au	xol iar	y spring	70	19-21	500 330	1,2-1,8	
29		9,5-12,0 4,2-6,7 0-1,0	with	auxil	iary s	pring	300 350 440	7,7-8,3 3,5-5,5 0-1,0			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop emp 40°C (104°F)	Rotational-speed limital 3a Fuel delivery characteristics			Starting (uel delivery 5	4a) Idle stop	
rev/min	cm/1000 strokes	changed to) rev/min 3	rev/min	cm·/1000 strokes 5	rev/min 6	cm1/1000 strokes	rev/min	Control rod travel mm
Pump i Take i	uns in tandem w full-load delive	ith PE 8 P ry from VDT	00/90 I-401	D/5 RS 114 - 0 4 /103	- 01 81	- 3 011	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.84

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WPP 001/4 KHD 36,6 c

F 16 M 716

1. Edition

PE 8 P 100/920/5 RS 115

RSUV 300-600 P 8/322 R

supersedes KHD

Komb.-Nr. 0 401 878 041

1-5-4-3-8-7-2-60-45-75-135-210-270-300-345° ± 0,5° (± 0,75°)

engine

Note VDT-I-401/ 103

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,0-2,1 (1,95-2,15)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel	Fuel delivery cm*/100 strokes 3	Difference cm ^{-y} 100 strokes 4	Control rod travel mm	Fuel delivery cm ^{-//} 100 strokes 3	Spring pre tensioning (forque-confio) valve) mm
1000	12,0	12,4-13,2	0,5			
600 600 600 200	9,0 12,0 15,0 9,0	5,4-6,4 11,4-12,7 17,5-18,8 3,6-4,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

	r rated speed Control rod travel mm		Interme	ediate rated	speed	Control- lever dellection in degrees 7	Lowe rev/min	Control rod travel mm	rev/min	Control rod travel
ca. 68	600 620 635	16,0 10,4 6,0	with	out au	xoliar	ca. 34 y spring	60	8,0 19-21	580 350 320	0 0 1,2-1,8
28	620 650 690	9,0-10,6 2,0-4,8 0-1,0	with	auxil	iary s	pring	300 320 360	7,7-8,3 4,5-6,3 0-1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop emp. 40°C (104°F)	Rotational- speed limitat	speed limitat Characteristics			Starting fuel delivery 5 4a Idle stop				
rev/min	cm ¹ /1000 strokes	changed to) rev/min 3	rev/min	cm ^{1/} 1000 strokes 5	rev/min	cm v1000 strokes 7	rev/min 8	Control root travel mm		
Pump Take	runs in tandem full-load deliv	with PE 8 P ery from VD1	100/9 -1-40	00/5 RS 114 - 0 1/103	- 401 8	- 8 006	-	-		

Checking values in brackets

* 1 mm less control rod travel than col. 2

6.84

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Fig

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WPP 001/4 KHD 36,6 c 1

1. Edition

En

PE 8 P 100 A 920/5 RS 115 RSUV 300-600 P 8/322 R Komb.-Nr. 0 401 878 048 1- 5- 4- 3 - 8 - 7 - 2 - 6 0-45-75-135-210-270-300-345° + 0,5° (+ 0,75°) Note VDT-I-401/ 103

supersede KHD company F 16 M 716

engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,0-2,1 (1,95-2,15)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel	Fuel delivery cm/100 strokes 3	Difference cm ^{-/} 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ^{-/} 100 strokes	Spring pre-tensioning (forque-control valve) mm 6
1000	12,0	12,4-13,2	0,5			
600 600 600 200	9,0 12,0 15,0 9,0	5,4-6,4 11,4-12,7 17,5-18,8 3,6-4,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	Control rod travel mm	rev/min Control rod travel mm rev/min 3	Intermo	ediate rated	speed 6	Control- lever deflection in degrees 7	rev/min	r rated speed Control rod travel mm	3 To	Control rod travel mm
ca.68	600 620 635	16,0 10,4 6,0	with	without auxoliar			1 00	8,0 19-21	580 350 320	0 0 1,2-1,8
20	620 650 690	9,0-10,6 2,0-4,8 0-1,0	with	with auxiliary s		pring	300 320 360	7,7-8,3 4,5-6,3 0-1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	emp 40°C (104°F)	6 Rotational- speed limitat	33 Fu	net delivery Paracteristics	Starting I	uel delivery 5	(4a) Idi	e stop
	cm*/1000 strokes	changed to 1 rev/min 3	rev/min 4	cm ¹ /1000 strokes 5	rev/min	cm11000 strokes 7	rev/min 8	Control rod travel mm
Pump Take	runs in tandem full-load deli	with PE 8 P ery from VD	100/9 T-1-40	00/5 RS 114 - 0 1/103	401 8	18 011		-
			•					

Checking values in brackets

* 1 mm less control rod travel than col. 2



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WPP 001/4 KHD 36,6 c 2

1. Edition

PE 8 P 100 A 920/5 RS 115 RSUV 300-600 P 8 A 322 R

Komb.-Nr. 0 401 878 088 1-5-4-3-8-7-2-6

0-45-75-135-210-270-300-345° ± 0,5° (± 0,75°)

Note VDT-I-401/ 103

supersedrs KHD company F 16 M 716 engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1,95-2,15)

mm (from BDC)

Control rod travel mm 2	Fuel delivery cm ^{-/} /100 strokes 3	Difference cm ^{-y} 100 strokes 4	Control rod travel mm	Fuel delivery cm ^{-/} 100 strokes	Spring pre tensioning (torque-control valve) mm
12,0	12,4-13,2	0,5			
9,0 12,0 15,0 9,0	5,4-6,4 11,4-12,7 17,5-18,8 3,6-4,6				
	12,0 9,0 12,0 15,0	travel mm 2 cm ¹ /100 strokes 3 12,0 12,4-13,2 9,0 5,4-6,4 12,0 11,4-12,7 15,0 17,5-18,8	travel mm 2 cm ¹ /100 strokes 2 cm ¹ /100 strokes 3 cm ¹ /100 strokes 4 12,0 12,4-13,2 0,5 9,0 5,4-6,4 12,0 11,4-12,7 15,0 17,5-18,8	travel mm 2 cm ¹ /100 strokes 3 cm ¹ /100 strokes 4 cm ² 12,0 12,4-13,2 0,5 9,0 5,4-6,4 12,0 11,4-12,7 15,0 17,5-18,8	travel mm 2 cm ¹ /100 strokes 2 cm ¹ /100 strokes 4 cm ¹ /100 strokes 2 cm ¹ /100 strokes 3 cm ¹ /100 strokes 2 cm ¹ /100 strokes 3 cm ¹ /100 strokes 2 cm ¹ /100 strokes 3 cm ¹ /100 strokes 3 cm ¹ /100 strokes 2 cm ¹ /100 strokes 3 cm ¹ /100 stro

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	ection travel travel ontrol mm mm rev/min					Control- lever deflection in degrees 7	Lowe rev/min 8	Control rod travet mm	3 To	rque control Control rod travel mm
ca.68	600 620 635	16,0 10,4 6,0	with	out au		ca. 34 y sprin	300 9 60 300	8,0	580 350 320	0 0 1,2-1,8
2a	620 650 690	9,0-10,6 2,0-4,8 0-1,0	with	auxil	iary	spring	320 360	7,7-8,3 4,5-6,3 0-1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ill load stop	6 Rotational- speed limital					(4a) Idi	e stop
	cm //1000 strokes	Note changed to) rev/min 3	rev/min	cm*/1000 strokes	rev/min	cm/1000 strokes	rev/min 8	Control rod travel mm
Pump Take	runs in tandem i full-load delive	vith PE 8 P ry from VDT	100/90 -1-40	0/5 RS 114 - 0 /103	401 81	8 011		-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.84

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WPP 001/4 KHD 36.6 a 2

1. Edition

PE 8 P 100 A 920/5 RS 115 Komb.-Nr. 0 401 878 069

RSUV 300-750 P 9 A 322 R

supersedes.

1 - 5 - 4 - 3 - 8 - 7 - 2 - 6 0 -45-75-135-210-270-300-345° ± 0.5° (± 0.75°)

company KHD

Note VDT-I-401/ 103

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

engine F 16 M 716

A. Fuel Injection Pump Settings

Port closing at prestroke

2,0-2,1 (1.95-2.15)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm/100 strokes . 3	Difference cm ¹ / 100 strokes 4	Control rod travel mm 2	Fuel delivery . cm*/100 strokes	Spring pre tensioning (torque-control valve) mm
1000	12,0	12,4-13,2	0,5			
600 600 600 200	9,0 12,0 15,0 9,0	5,4-6,4 11,4-12,7 17,5-18,8 3,6-4,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

	r raled speed Control rod travel mm		Interme	ediate rated	speed	Control- lever deflection in degrees 7	Lowin rev/min 8	Control rod travel mm	3 To	Control rod travel mm
ca. 68	750 770 800	16,0 12,5 6,2	with	out au		ca. 31 y spring	300 60 300	8,0 19-21	730 400 320	0 0 1,2-1,8
2a	785 800 820	7,4-10,4 4,8-7,8 1,8-4,8	with	auxil	iary s	pring	350 470	7,7-8,3 4,6-6,2 0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop						(4a) Idi	e stop
	cm/i/i000 strokes	Note changed to) rev/min	rev/min	cm ¹ /1000 strokes	rev/min	cm 11000 strokes	rev/min	Control rod travel mm
Pump Take	runs in tandem (full-load delive	vith PE 8 P ery from VDT	100/90 -1-40	0/5 RS 114 - 0 /103	- 401 81	- 8 011	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

6.84

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WPP 001/4 KHD 36,6 b 2

1. Edition

En

PE 8 P 100 A 920/5 RS 115 RSUV 300-900 POA 327 R Komb.-Nr. 0 401 878 070
1- 5- 4- 3 - 8 - 7 - 2 - 6
0-45-75-135-210-270-300-345° ± 0,5° (± 0,75°)
Note VDT-I-401/ 103
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

company KHD F 16 M 716

A. Fuel Injection Pump Settings

Port closing at prestroke

Testos 450

2,0-2,1 (1,95-2,15)

mm (from BDC)

Rotational speed	Control rod	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre tensioning (forque-control valve)
rev/min 1	mm 2	cm //100 strokes	cm ⁻ / 100 strokes 4	mm 2	cm·/100 strokes	mm 6
1000	12,0	12,4-13,2	0,5			
600 600 600 200	9,0 12,0 15,0 9,0	5,4-6,4 11,4-12,7 17,5-18,8 3,6-4,6				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

K ' J '''	r rated speed Control rod travel mm	Control rod travel mm rev/min	Interme	diate rated	speed	Control lever deflection in degrees	Lower rev/min	rated speed Control rod travel mm	3 To	rque control Control rod travel mm
ca. 65	900 930 950	16,0 10,5 6,0	witho	out aux	coliar	ca. 23 y spring	300 70	8,0 19-21	880 500 330	0 0 1,2-1,8
2 8	930 960 1050	9,5-12,0 4,2-6,7 0-1,0	with	auxili	iary s	pring	300 350 440	7,7-8,3 3,5-5,5 0-1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull load stop emp 40 C (104 F)	Rotational speed irritat (3a) Fuel delivery characteristics		Starting I	uel delivery 5	Idle stop		
rev/min	cm/1000 strokes	changed to 1 rev/min 3	rev/min	cm·/1000 strokes 5	rev/min 6	cm·/1000 strokes 7	rev/min B	travel mm
Pump Take	runs in tandem full-load deliv	vith PE 8 P ery from VDT	100/90 I -40	10/5 RS 114 - 0 /103	40 1 81	8 011		-

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

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WPP 001/4 VOB 7.0 a

1. Edition

PE 6 P 100 A 320 RS 256

RQV 250-1200 PA 212/2 R

supersedes

Note sleeve position 36.0 mm - see WPP 001/4, suppl. 6

engine D 70 B

estoin 80 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	12,3 - 13,1	0,5			2,5 ± 0,1
600	9	5,2 - 6,2	1			(max. 2,2-2,9)
	12 15	11,1 - 12,4 16,6 - 18,2				-
200	9	3,2 - 4,2				<u> </u>

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed		Sliding	iceve travel
Degree of deflection of control	rev/min Control rod travel	Control rod travel	Degree of deflection of control		Control rod travei	Degree of deflection of control		Control rod travel		0
lever	mm	rev/min (28	lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca. 68		15,0-18,3	-	-	-	ca.23	120	8,3-10	1290	8,2
ca. 66	1560 1200 1300	15,1-18,2					250 350	3,3-5,4	-	-
	1400	8,0-13,1 0-7,3					500 570	0-2,5 0		
	1520	0				②				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo Test oil ten		Rotational-speed 2b firmitation intermediate speed	simedate speed		Starting Idle awitchir		Torque- travei	Control tod
rev/min	cm³/1000 strokes	rev/min 49	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
700	73,0 - 75,0	1230 - 1240 1 nm RW weniger			100	230,0-270,0	8	9
(Sp.	2 + 5 (inc	rease by <u>+</u> 1	0 cm³)				

Checking values in brackets

* 1 mm less control rod travel than col 2

VDT-WPP 001/4 VOL 7,0d 4. Edition

PE 6 F 110 A 320 RS 272 **RS 272Z** ROV 250-1200 PA 235/2R 250-1200

supersedes 10.77 company Volvo

RS 272Z

250-1250

TD 70 E

Port-closing test with/without ROBO diaphragm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke 3	.0 + 0.1	mm (from BDC	")		
Rotational speed rev/min	Control rad travel mm 2	Fuel delivery cm ¹ /100 strokes 3	Difference cm ¹ / 100 strokes 4	Control rod travel mm	Fuel delivery cm ¹ /100 strokes 3	Spring pre tensioning (torque-control valve) mm 6
1000	12	15, 3 - 16, 1	0,6			2,5+0,1 **
600	9 12 15	9, 1 - 10, 4 14, 9 - 16, 5 19, 3 - 21, 2				(max.2,2-2,9)
200	9	6,7 - 7,7				

Adjust the fuel delivery from each outlet according to the values in ______
** In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly.

B. Governor Settings

Upper rated	speed		Intermediate	e rated sp	eed	Lower rated	speed		Studens at	anun traval
Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rad travel		eeve travel ontrol travel
leve:	rev/min	mm	lever	rev/min	mm	lever	rev/min	mm	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
ca.50	1290 1560 1200 1300	15,0-18,4 0 5,0-18,2 3-2-13,3	_			ca.13	200 300		350 800 1290	1,4-2,0 4,4-4,8 8,2
	1400 1510	0 - 7,4					400 510	0 -3,6	•	-

Torque control travel a

C. Settings for Fuel Injection Pump with Fitted Governor

Full load of Control ro Test oil ter		Rotational-speed limitation	Fuel deln	Fuel delivery characteristics		fuel delivery	Intermediate rotational speed Torque-control		
rev/min	cm ² /1000 strokes	rev/min 3	rev/min	rev/min cm ¹ /1000 strokes		rev/min cm²/1000 strokes 6 7		travel rev/min mm	
272 700 272Z 700	-LDA 0,7 bar 91,0 - 93,0 -LDA 0,7 bar 108,0 - 110,0 (increase by		LDA 700 LDA 700	0 bar 70,5 - 73,5 0 bar 70,5 - 73,5	100 250	165 - 205 22 - 26 uung max.3,0	刊备		

Checking values in brackets

* 1 mm less control rod travel than col. 2

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J. 451		Cotting	_							,	
Upper rated :	speed			Intermediate	rated spe	ed	Lower rate	speed		Sliding sl	leeve travel
Degree of deflection	rev/min	Control rod (la)	Degree of deflection		Control rod	Degree of deflection		Control rod travel		0
of control	rod travel	mm	2a)	of control lever	rev/min	mm (4	of control lever	rev/min	mm (3)	rev/min	mm
1	2	3		4	5	6	7	8	9	10	11
ca. 50	1320 1400 1490 1580	15,0-18, 8,3-13, 0- 7, 0	5	-	-	-	ca.13	100 200 375 510	8,8-11 7,0-9,7 0-4 0	1320	8,3
							3a)				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo Test oil tem		Rotational-speed (2b) limitation intermediate speed	characteristics high idle speed 5b		Starting Idle switchir		Torque-control 5 travel	
rev/min	cm ³ /1000 strokes	revimin (48)	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	
1	2	3	4	5	6	7	8	9
See pa	ge 1	1290-1310*						

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm
272 with 235/2R	0,33-0,35		
	·	0,19-0,25	
272Z with 235/2R	0,38-0,41		
		0,16-0,22	

Testoil-ISO 4113

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 AEC 12,0 a

1. Edition

En

PE 6 P 120 A 320 RS 298

RQV 250-1000 PA 277 R

supersedes comparAEC engine TL 12/10

Komb.-Nr. 0 401 846 395

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 3,4-3,5

Port closing at pres	stroke (3.35-3.55)	mm (from BDC)			
Rotational speed		Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /1 00 strokes 3	cm ³ / 100 strokes 4	mm 2	cm³/100 strokes	mm 6
1000	12,0+0,1	20,0-20,4	0,5(0,9)			
250	7,0-7,2	1,6-2,0	0,8(1,2)			1
_				İ		
					1	1

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed	Stiding	leeve travel
Degree of deflection of control lever	rev/m in Control rod travel mm 2	Control rod travel mm rev/min 28	Degree of deflection of control lever	rev/min	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min mm 3	rev/min	mm 11
max. ca. 59	1000 11,0 4,0 1250	15,2-17,8 1040-1050 1085-1115 0-1,0		-	-	ca. 34	100 min. 8,5 250 7,0 - 7,2 430-490 = 2,0	200 470 730 1000	0,8-1,1 3,8-4,1 5,1-5,3 7,3
						3a			

Torque control travel a = ___ m

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter				Starting Idle switching		Torque- travel	Control rod	
rev/min 1	cm ³ /1000 strckes 2	rev/min 40	rev/min 4	cm ³ /1000 strokes 5	rev/min	crn ³ /1000 strokes 7	rev/min	travel mm 9
LDA 1000	0,7 bar 200,0-204,0 (197,0-207,0)	1040-1050*	LDA 1000	0 bar 187,0-191,0 (184,0-194,0)	- 250	- 16,0-20,0 (13,0-23,0)	•	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

AEC 12,0 a

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure - bar	Gauge pressure =	mm (1)
PE 6 PRS 298 + RQVPA 277 R	0,70	0 0,31 0,29	12,0-12,1 11,3-11,4 11,8-11,9 11,4-11,6

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

①

este/450 4113

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 AEC 12,0 a 2

1. Edition

PE 6 P 120 A 320 RS 298

ROV 250-1100 PA 277 R

supersedes

company AEC engine TL 12/10

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke	3,4-3,5 (3,35-3,55)	mm (from BDC	mm (from BDC)							
Rotational speed rev/min	Control rod trevel mm 2	Fuel delivery cm ³ /100 strokes 3	Oifference cm ³ / 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6					
1000	12,0	19,7-20,3	0,5								
600 600 200	9,0 15,0 9,0	8,4-9,6 18,6-20,4 3,3-4,3									

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rat	ted s	peed	1		Intermediate	rated sp	eed	Lower rated	speed		Sidios	ileeve travel
Degree o deflection of contro lever	n I	rev/min Control rod travel mm	Control rod travel mm rev/min		Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever		Control rod travel		0
1		2	3	9	4	5	6	7	rev/min 8	mm (3)	rev/min 10	11
ca. 6		1100 1150 1200 1260	15,0-18, 8,2-13, 0-7,2	6	-	-	-	ca. 25	80 150 250 350	7,0-11,0 5,1-8,6 1,1-4,8	500	0,9-1,2 3,7-3,9 5,2-5,6 7,9
								③				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-rot Test oil ten rev/min 1	d stop np 40°C (104%) 2	intermediate speed			idle	ng point	Torque-control 5 travel Control ro travel rev/min mm 8	
LDA 1100	0,7 bar 235,0-239,0 (233,0-241,0		LDA 1100	0 bar 210,0-215,0 (208,0-217,0	- 250	13,0-23,0	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

D. Adjustment Test for Manifold Pressure Compensator

AEC 12,0 a 2

- 2 -

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

500			
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 6 PRS 298 + RQVPA 277 R	0,45-0,48	0,36-0,41	- 0,1 - 1,1

Notes

(1) when n

rev/min and gauge pressure

bar (* maximum full-load control rod travel)

 \odot

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 AEC 12,0 a 1

1. Edition

PE 6 P 120 A 320 RS 298 Z

RQV 250-1100 PA 277 R

supersedes.

Komb.-Nr. 0 401 846 389

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

company: AEC engine. TL 12/10

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	cm ³ / 100 strokes 4	mm 2	cm³/100 strokes 3	mm 6
1100	14,0+0,1	20,0-20,2	0,5(0,9)			
250	7,7-7,9	1,6-2,0	0,8(1,2)			7

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed		Stiding	leeve travel
Degree of deflection of control lever	rev/min Control rod travel mm 2	Control rod travel mm rev/min 2e	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever	rev/min	Control rod travel mm 3		mm
max.	1100	15,2-17,8	-	-	•	ca. 34	100 250	min. 9,2 7,7-7,9		0,9-1,2 3,7-3,9
Ca. 61	12,5 4,0 1350	1140-1150 1210-1240 0-1,0					420-			5,2-5,6 7,9
						3				

Torque control travel a = - r

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten	d stop np. 40°C (104°F) 2			idie switchin	• . •	Torque- travel	Control cod travel mm	
1	2	3	4	5	6	7	8	9
LDA 1100	0,7 bar 200,0-202,0 (197,0-205,0)	1140-1150*	LDA 1100	0 bar 176,0-180,0 (174,0-182,0	-	- 16,0-20,0	•	-

Checking values in brackets

1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

AEC 12,0 a 1

2 -

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

500			
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 PRS 298 Z + RQVPA 277 R	0,70	0 0,50 0,45	14,0-14,1 12,4-12,5 13,5-13,6 12,9-13,1

Notes

(1) when n

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

40

WPP 001/4 DEE 7,6 a 1
2. Edition

En

PES 6 P 110 A 720 RS 361 Komb.-Nr. 9 400 231 108

US-RSV 400-1100 P 2/497

supersedes 10.83

KOMD.-Nr. 9 400 231 108

lise overflow valve 1 457 413 010

ingine 6466 A

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,75-2,85 (2,70-2,90)

mm (from BDC)

	,-	,. 0 2,00,				
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (forque-confrol valve)
tek/wiu	mm (2)	cm ¹ /100 strokes	100 strokes	mm	cm 1/100 strokes	mm
1	2	3	4	2	3	6
1100	11,3+0,1	15,0-15,3	0,4(0,75)			
400	5,5-5,7	0,8-1,3	0,45(0,75)		
ļ				i		
			•			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	er rated speed Control rod travel mm	trev/min Control rod travel mm rev/min 3	Interme	diale rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm	3 To	rque control Control rod travel mm
loose	800	0,3-1,0	-	•	•	ca.24	400 100	5,2 min.19,0	1100 950	11,0-11,1 11,0-11,2
ca.48	10,0 4,0 1350	1140-1150 1240-1270 0,3-1,7					400 610-670 700	5,6-5,8 = 2,0 max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	emp 40°C (104°F)	Rotational- speed limital Rote Rotational- characteristics			Starting fuel delivery 5 4 Idle stop				
rev/min	cm ¹ /1000 strokes	changed to) rev/min 3	rev/min	cm ^{1/} 1000 strokes 5	rev/min	cm ¹ /1000 strokes	rev/min 8	Control rod travel mm	
	0,9 bar 149,5-152,5 147,0-155,0)	1140-1150*	LDA 950 LDA 500	0,9 bar 151,0-155,0 (148,0-158,0) 0 bar 119,5-123,5 (116,5-126,5)	100	160,0-180 156.0-184		5,6	

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung. 1980 by Robert Bosch GmbH, Postfach 50. D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en République Fédérale d'Alfemagne par Robert Bosch GmbH.

D. Adjustment Test for Manifold Pressure Compensator

DEE 7,6 a 1

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

		diminution Control rod travel- difference
auge pressure = bar	Gauge pressure = bar	mm (1) .
0,38	0,24 O	11,25-11,35 10,40-10,80 10,20-10,40
		0,38

Notes.

(1) when n

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

B8

Testoil-150 4113

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 MAN 11,1 q 27

1. Edition

PES6P 110 A 720 LS 375 Komb.-Nr. 0 402 046 309 RQ 300/1100 PA 658-10

supersedes

company:

MAN

engine:

D2566 MLUM/US

191 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,95-3,15)

mm (from BDCRW = 9.0-12.0 mm, Zy1.6

Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
12,6+0,1	14.7-15.0	0,4(0,75)			
7,4-7,6	1,5-2,0	0,45(0,75)		
		·			
	travel mm 2 12,6+0,1	travel cm³/100 strokes 3 12.6+0.1 14.7-15.0	travel cm ³ /100 strokes cm ³ / 2 cm ³ /100 strokes 4 12.6+0.1 14.7-15.0 0,4(0,75)	travel cm³/100 strokes cm³/ 100 strokes 2 cm³/ 100 strokes 4 mm 2 2 12.6+0.1 14.7-15.0 0,4(0,75)	travel cm³/100 strokes cm³

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	ng of slider eck Control rad	Full-load : Setting po		-	cifications (4)	Idle spec	point		cifications (5)	Torque	(3
rev/min 1	travel	rev/min 3	red travel mm 4	red travel mm	rev/min 6	rev/min 7	Cantral red travel rmm 8	rev/min	Control rod fraved mmi	rev/min 11	Control rod travel mm
600 VH=	19,2-20,8 max. 46°	600	20,0	10,8 4,0 1350	1185-1215		7,5	100 300 390-	min 9,0 7,4-7,6 30=2,0	1100 880	12,6-12,7 11,8-11,9 12,3-12,5 11,9-12,2

on flyweight assembly dimension a \approx 0, 3

Speed regulation: At 1145-1160 min

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	2	Control rod stop	3 a	Fuel deliv	ory characteristics	Starting f	tuel delivery 6
rev/min 1	cm ³ /-1000 strokes 2		rev/min 3		rev/min 4	cm ³ /~1000 strokes	rav/min 6	Castrel red transicom ³ /1000 strokes / mm 7
LDA 750	0,7 147,0-150, (144,5-152,	0	•		LDA 600	0,2 bar 145,0-149,0 (142,0-152,0)	100	225,0-245,0 (221,0-249,0)
1100	0,7 bar 136,0~140, (133,0-143,				LDA 500	0 bar 144,0-148,0 (141,5-150,5)	300	7,4-7,6 mm RW

Checking values in brackets

7.84

BOSCH

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

MAN 11,1 q 27 - 2 -

200			
Pump/governor	Setting	Measurement	diminution Control rod travel- idifference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PES6PLS 375	0,70		12,6-12,7
+RQPA 658-10	}	0	11,7-11,8
		0,20	12,4-12,5
		0,15	11,9-12,2
	#		
	1		

Notes

(1) when n

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

 \odot

estor SO 414

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 BET 8,8 b 1

2. Edition

PE 6 P 120 A 320 RS 377 Komb.-Nr. 0 401 846 489

RQV 275-1200 PA 425-2

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

companyRVI engine. MIDS 062030 158 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1200 12,6+0,1 15,0-15,2 0,5(0,9)	
1200	
275 5,4-5,6 1,1-1,7 0,8(1,2)	

Adjust the fuel delivery from each outlet according to the values in ______.

B. Governor Settings

deflection	rev/min Control rod travel	Control rod (tatravel mm rev/min (2)	Intermediate Degree of deffection of control lever	e rated sp	Control rod travel	Lower rated Degree of deflection of control lever	speed rev/min	Control rod travel	Sliding s	leeve travel
1	2	3	4	5	6	7	8	9	10	11
max.	1310	15,2-17,	3 -	-	-	ca. 10		min. 8,5	275	1,0-1,2
ca. 64	11,6 4,0 1500	1245-1259 1375-1409 0-1,0				275 - 375		5,4 - 5,6		3,0-3,5 5,6-5,9 7,6
						3				

Torque control travel a = __

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter rev/min	mp 40°C (104°F) 2	Rotational-speed (2b) firmitation intermediate speed rev/min (4a)	high idle s		idle switchin		Torque- travel	Control cod travel mm
LDA 1200	0,7 bar 150,0-152,0 (147,0-155,0)	1245-1255*	LDA 350	0 bar 51,0-55,0 (48,0-58,0)	6	-	•	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.84

BOSCH

D. Adjustment Test for Manifold Pressure Compensator

BET 8,8 b 1

Test at n =

500 rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel- difference
	Gauge pressure - bar	Gauge pressure = bar	mm (1)
PE 6 PRS 377 + RQVPA 425-2	0,70	0 0,20 0,16	12,6-12,7 11,1-11,2 12,2-12,3 11,5-11,7

Notes

(1) when in :

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 HIP 11,9 a 2. Edition

PE 6 P 110 A 720 RS 380 Komb.-Nr. 0 401 846 495

RQV 250-950 PA 434-1

supersedes 10.83

company Hispavinsa

BSR 36 A

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC) RW = 9.0 - 12.0 mm

		<u> </u>			,	
Rotational speed rev/min 1	travel	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
950	15,5+0,1	19,0-19,2	0,4(0,75)			
250	8,5-8,7	2,4-3,0	0,4(0,7)			
			·			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed	•	Intermediat	rated sp	eed	Lower rated	speed		Cticling	Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel mm 2	Control rod travel mm rev/min 2a	of control	rev/min	Control rod travel mm 4	Degree of deflection of control lever	rev/min 8	Control rod travel	rev/min	0	
max.	1050	15,2-17,8	-	-	-	ca. 16	100	min.10,0	200	0,5-0,8	
ca.65	•	990-1000						8,5-8,7 475=2,0	700	3,8-4,2 5,2-5,4	
	4,0 1250					350-465			950	7,5	
						③					

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter	elivery d stop np. 40°C (104°F) 2	Rotational-speed 2b limitation intermediate speed	Fuel deli- high idle s	very characteristics (5e speed (5e)	idle	fuel delivery 6	Torque- travel	Control roo
rev/min 1	cm ³ /1000 strokes	rev/min 49 3	rev/min 4_	cm ³ /1000 strokes 5	rev/min 6		rev/min 8	travel mm
LDA 950	0,7 bar 190,0-192,0 (187,0-195,0		LDA 500	0 bar 141,0-144,0 (138,5-146,5)	-	-	-	_

* 1 mm less control rod travel then col. 2

HIP 11,9 a

-2-

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE6P RS 380 +RQVPA 434-1	0,70	0 0,45 0,34	15,5-15,6 13,2-13,3 15,0-15,1 13,7-13,9

Notes

(1) when n -

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 BET 8,8 a 2

1. Edition

PE 6 P 120 A 320 RS 383 RQV 275-1100 PA 425-1 Komb.-Nr. 0 401 846 481 Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes...

company: RVI

engine MIDS 062030

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	A1-A	75-2.95)	mm (from BDC)							
Rotational speed	Control red travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (forque-control valve)				
rev/min 1	mm 2	cm ³ /100 strokes 3	100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6				
1100	14,2+0,	15,1-15,3	0,5(0,9)							
275	5,4-5,	1,3-1,9	0,8(1,2)							

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	e rated sp	eed	Lower rated	speed		Sliding s	leeve travel
deflection	rev/min Control	Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		0
lever	rod travel	rev/min (20	lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	a	9	10	11
max.	1170	15,2-17,8	-	-	-	ca. 11	200	min.8,5	275	1,2-1,3
ca.65	13,2	1155-1165 1315-1345					275	5,4-5,6	450 800	3,3-4,0 6,1-6,3
	1450	0 - 1,0				275-365 3			100	8,0

Torque control travel s = ___

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed 20 fimitation intermediate speed	Fuel delichigh idle s	rery characteristics (5e)	Starting Idle switching	. 0	Torque- travel	control (5)
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
I.DA 1100	0,7 bar 151,0-153,0 (148,0-156,0)	1155~1165*	LDA 500	0 bar 87,0-89,0 (84,0-92,0)	100	130,0-150,0 (126,0-154,0)	1	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test at n 500 rev/min decre

rev/min decreasing pressure - in bar gauge pressure

BET 8,8 a 2

-2-

Pump/governor	Setting	Measurement	diminution Control rod travet- difference
- ·· · ·	Gauge pressure bar	Gauge pressure = bar	mm (1)
PE6PRS 383 +RQVPA 425-1	0,70	0 0,23 0,18	14,2-14,3 12,4-12,5 13,7-13,8 12,8-13,0

Notes

(1) when n

rev/min and gauge pressure =

bar (maximum full-load control rod travel)

B16

Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 DAF 11.6 t 5 2. Edition

En

PE 6 P 120 A 320 RS 385-2 Komb.-Nr. 0 401 876 274 RSV 250-750 P 7/479

supersed 0.83

companDAF

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

engine DKX 1160

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2.75-2.95

mm (from BDC); RW = 9.0-12.0 mm

n closing at pi	restroke (2,	/5-2,95)	min (nom BDC)	, IM - 3,0-	12,0 11111
otational	Control rod	Fuel delivery	Difference	Control rod	Fuel delivery

Į	Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre tensioning (torque-control valve)
	rev/min 1	mm 2	cm/100 strokes 3	cm ⁻ / 100 strokes 4	mm 2	cm //100 strokes	mm 6
	750	12,6+0,1	22,1-22,3	0,5(0,9)			
	250	5,4-5,6	1,4-2,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

14 ' /	r rated speed Control rod travel mm		Interme	diale rated	speed	Control- lever deflection in degrees	Lower rev/min	rated speed Control rod travel mm	ハッノ	rque control Control rod travel mm
loose	800 X =	0,3-1,0 3,75	-	-	<u>-</u>	ca. 18	250	5.0 4,9-5,1	•	-
ca.44	4,0	790-795 810-825 0,3-1,7					250-29	0 = 2,0 **		

The numbers denote the sequence of the tests ** Set idle auxiliary spring at 2,0 mm.

C. Settings for Fuel Injection Pump with Fitted Governor

	uit load stop	Rotational- speed limitat		nel delivery. Paracteristics	Starting f	uel delivery 5	4a) Idi	e stop Control rod
rev/min	cm /1000 strokes	changed to) rev/min 3	rev/min 4	cm v1000 strokes 5	rev/min 6	cm*/1000 strokes 7	rev/min 8	travel mm 9
750	221,0-223,0 (218,0-226,0)	790-795 *	-	-	-	-	250	5,0

Checking values in brackets

* 1 mm less control rod travel than col 2

7.84

BOSCH

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung... 1980 by Robert Bosch GmbH. Postfach 50. D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

3.84

D 2566 MK/MKP

206 kW/2200 min-1

MAN

WPP 001/4 MAN 11.1 q 7 4. Edition

supersedes

company:

engine

PES 6 P120 A 720 LS 388 RQ250/1100 PA 509 (1)

RQV250-1100 PA 504 (2) (1) MAN-Nr. 2-7083

Komb.-Nr. 0 402 046 208 0 402 046 209 (1) MAN-Nr. 2-7066 0 402 046 204 (2) MAN-Nr. 2-7113 0 402 046 205 (2) MAN-Nr. 2-7111

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

Cv1.

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	11,4-11,5	17,7- 18,1	0,5(0,9)			
250	6,2- 6,4	1,2- 1,8	0,8(1,2)			
	i					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ - 509

Checkin	ng of slider	Full-load	speed re	gulation		Idle spec	ed regula	ation	_	Torque d	control
PRG ch	(' /	Setting po		Test spec	cifications (4)	Setting p	oint	Test spe	cifications (5)		3
rev/min	Control rod travel mm	rev/min	Central red travel mm	rad travel mm	rev/min	rev/min	Control red travel rnrn	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
Į.	19,2-20,8	600	20,0	9,2	1145-1160	250	6,3	100	min.7,8	1100	10,2-10,3
1100	Breakway 0 - 1,0	VH ca	. 49°	4,0	1180-1210			250	6,2-6,4	975 875	10,4-10,6
								350-	390 =2,0		
<u> </u>										750	11,4-11,5

Torque-control travel on flyweight assembly dimension a = 0,45 mm

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics	Starting t	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min	cm ³ /-1000 strokes	rev/min 6	Cantral red travel cm ³ /1000 strokes:/ mm
LDA 750	0,7 bar 177,0-181,0 (174,0-184,0)		LDA 650 LDA 600	0,31 bar	100 250	215,0-235,0 12,0- 28,0
LDA 1100	0,7 bar 166,0 - 172,0 (162,5 - 175,5)		LDA 600	0 bar 102,0 - 106,0	100-1	70 (80-190)

Checking values in brackets

(Col.4-5 inrease by \pm 3 cm³)

B. Governor Settings

Upper rated s	peed			Intermediate	rated spe	ed	Lower	rated	speed			Sliding sl	eeve trave	91
Degree of deflection	rev/min Control	Control ro	d (a)	Degree of deflection		Control rod travel	Degre dellec	tion		Control travel	rod	j ,	(1)
of control lever	rod travel	rev/min	(2a)	of control lever	rev/min	mm ①	of can	trol	rev/min	աա	3	rev/min	mm	
1	2	3		4	5	6	7		8	9		10	11	
max.	1100	15,2-	17,8				ca.	15	100	min.	.7,8	250	1,	,2
						ŀ			250	¹ 6,2	-6,4	500	4,0-4	,3
ca.66	9,2	1140-1	150						395-	455=	2,0	1150	8,	4
	4,0	1220-1	250											
	1400	0 -	1,0				(3a)							

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roo Test oil ten		Rotational-speed (2b) limitation intermediate speed	characte high idle :	nstics	Starting Idle switchir	luel delivery 6	Torque- travel	Control rod
rev/min 1	cm³/1000 strokes	rev/min	rev/min	cm ³ /1000 strokes 5	rev/min 6	cm /1000 strokes 7	rev/min 8	
LDA 750 LDA 1100	0,7 bar 177,0 - 181,0 174,0 - 184,0 0,7 bar 166,0 - 172,0 162,5 - 175,5	1140-1150*	LDA 650 LDA 500 LDA 500	0,7 bar 171,0 - 177,0 0,31 bar 134,0 - 140,0 0 bar 102,0 - 106,0	100 250 100-1	215,0-235,0 12,0- 18,0 70 (80-190)	1100 975 875 750	10,2-10 10,4-10 11,0-1 11,4-11

Checking values in brackets (Sp. 4-5 increase by ± 3,0 cm³)

* 1 mm less control rod travel than co: 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n 3

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel difference
	Gauge pressure = bar	Gauge pressure = bar	mm
388 + 509	0,7	0,43 0,31 0	11,4 - 11,5 10,9 - 11,1 10,3 - 10,4 9,2 - 9,3
388 + 504	0,7	0,43 0,31 0	11,4 - 11,5 10,9 - 11,1 10,3 - 10,4 9,2 - 9,3

En'

Edition

PES 6 P 120 A 320LS 403 Komb.-Nr. 0 402 046 198 RO 250/1100 PA 487 R

supersede4 .80 company MAN

engine D 2566

6 - 2 - 4 - 1 - 5 - 3 0 - 60 - 120 - 180 - 240 - 300 $\pm 0,5$ ° ($\pm 0,75$ °)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings (2,95-3,15)

Port closing at prestroke

Testoil-ISO 4113

3.00-3.10

mm (from BDC)

Rotational speed rev/min	Control rod travel	Fuel delivery cm-3/100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	14,0-14,	1 22,0 - 22,4	0,5(0,9)			
250 1100/650/5	7,5-7,7 00/500	1,7 - 2,3 C,4-5	0,8(1,2) 0,6(1,0)	1		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkine PRG che	\ ' /	Full-load s Setting po	int	Test spec	cifications (4)	Idle spec	point		cifications (5)	Torque	(3)
rev/min	Control rod travel mm 2	rev/min 3	Central red travel mm 4	Centrel red travel mm 5	rev/min 6	rev/min 7	Control red travel mm 8	rev/min 9	Control rod travel mm	rev/min	Control rod travel mm 12
600	19,2-20,8	600	20,0	11,5	1145-1160	250	7,6	100	min.9,1	1100	2,5-12,6
1100	Breaka-	VHca	.49°	4,0	1190-1220				7,5-7,7		35=12,9
1300	way 0 - 1							355-3	95=2,0	750	5=13,7 14,0-14,1

Torque-control travel on flyweight assembly dimension a = 0,55 mm

Speed regulation: At

1 mm less control

9.84

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F) cm³/-1000 strokes	Control rod stop rev/min 3		<u>зь</u>	Starting for Idle spee 2 rev/min 6	
LDA 750 LDA 1100	1,0 bar 220,0 - 224,0 (217,0 - 227,0) 1,0 bar 185,0 - 191,0		LDA 650 LDA 500	=,29 bar 138,0 - 144,0	100 100-17	215,0-235,0 0 (80-190)
	(182,0 - 174,0)		LDA 500	0bar 115,0 - 119,0		

Checking values in brackets

MAN 11,1 1 6 - 2 -

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = _ bar	mm (1) .
403 + 487 R	1,0		14,0-14,1
		0,58	13,4-13,7
		0,29	11,7-11,8
		0	10,8-10,9

Notes

(1) when n

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Checking values for FM

LDA 1,0 bar 650 1/min	(209, 0 - 221, 0)
LDA 0,29 bar 500 1/min	(135, 0 - 147, 0)
LDA Obar 500 1/min	(112.0 - 122.0)

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 DAF 11,6 x 1. Edition

PE 6 P 110 A 320 RS 407-1

RO 275/1000 PA 641

compan DAF

Komb.-Nr. 0 401 846 472

engine DKFL 1160 185 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed	Control rod travel	75 - 2,95) Fuel delivery	Difference cm ³ /	RW=9.0-1 Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6
600	12.8+0.1	15.0 - 15.3	0,4 (0,75	b		
275	7,0-7,2	0,9 - 1,4	0,45(0,75)		
				ļ		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

						ldle spec Setting p	point	ition Test spe	Torque control		
'ev/min	travel	!	red travel rnm	Central red travel rmm	rev/min 6	rev/min 7	Control red travel mm 8	rev/min 9	Control rod travel mm	rev/min 11	travel
600	15,6-16,4	600	16,0	11,1 4,0 1300	1045-1060 1110-1140 0 - 1.0			275	nin. 8,6 7,0 - 7,2 90 = 2,0	1000	13,0 -13,1 12,1-12,3 12,6-12,8
					.,,						12,2-12,5

Torque-control travel on flyweight assembly dimension a =

1045-1060 min 1

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics 3b	Starting f	tarting fuel delivery fle speed Control		
rev/min 1	cm ³ /~1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes;/ mm		
LDA 600	0,7 bar 150,0 - 153,0 (147,5 - 155,5)	-	LDA 1000 LDA	0,7 bar 135,5-140,5 (132,5 - 143,5) 0 bar	100	245,0 - 285,0 (141,0 - 289,0) = 19,5-21,0 mm RW		
			600	136,0 - 139,0 (133,5 - 141,5)	275	7,0 - 7,2 mmRW		

Checking values in brackets

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure

DAF 11,6 x

-2-

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 6 P RS 407-1 + RQ PA 641	0,50	0 0,30	12,8 - 12,9 12,1 - 12,2 12,6 - 12,7

Notes

(1) when n :

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps 2 MPP 001/4 RVI 9,8 a 2 and Governors

2. Edition

En

RO 750 PA 595-1 PES 6 P 120 A 320 RS 419-1 Komb.-Nr. 0 402 046 232 Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedescompany RVI

MIDS 0 62045 engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

41

Testoil SO

(2.75-2.95)

mm (from BDC)

RW = 9.0-12.0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokus 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,3+0,	1 24,6-24,8	0,5(0,9)			
250	5,8-6,0	1,7-2,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin		\sim	Full-load s Setting po	•		cifications (4)	Idle spec	-		cifications (5)	Torque d	control 3
rev/min 1	Control rod travel mm 2			Control red travel mm	Centrel red travel rnm 5	rev/min	rev/min	red travel mmn 8	rev/min 9	Control rod travel mm	rev/min	travel
•	-		•	4	12,3 4,0 900	750-755 787-800 0 - 1,0	•	•	***	-	-	-

Torque-control travel on flyweight assembly dimension a =

Speed regulation: 750-755 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	lelivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics	3 b	Starting t	tuel delivery
rev/min 1	cm³/~1000 strokes 2	rev/min 3	rev/min	cm ³ /-1000 strokes 5		rev/min 6	cm ³ /1000 strokes / mm 7
700	246,0-248,0 (243,0-251,0)	-	-			100	130,0-150,0 (126,0-154,0)

Checking values in brackets

7.84

B24 BOSCH

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 DAF 11,6 01 4. Edition

En

PE 6 P 120 A 320 RS 415

RSV 250-900 P 5/475

supersede 2.82

Komb.-Nr. 0 401 876 248

companyDAF engine DKS-E 1160

Note VDT-I-420/114

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2,90-3,00

Port closing at prestroke

(2,85-3,05)

mm (from BDC)

Rotational speed rev/min t	Control rod travel mm 2	Fuel delivery cm*/100 strokes 3	Difference cm ^{-y} 100 strokes 4	Control rod travel mm 2	Fuel delivery cm*/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
650	11,9-12,0	18,4-18,7	0,5(0,9)			
250	6,7-6,9	1,9-2,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

	r rated speed Control rod travel mm		Intermed	hate rated	speed	Control- fever deflection in degrees 7		rated speed Control rod travel mm	3 To	rque control Control rod travel mm 11
loose	800 x =	0,3-1,0 5,0	-	-	-	ca. 24	250	6,3	650 900	12,1-12,2 11,4-11,6
ca.46		940-950 1025-1055 0,3-1,7					250 395-455	6,7-6,9 = 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop	6 Rotational- speed limitat		uel delivery naracteristics	Starting (uel delivery 5	4a) Idle stop	
rev/min	emp 40°C (104°F) cm/1000 strokes 2	Note changed to .) rev/min	rev/min	cm ¹ /1000 strokes 5	rev/min	cmV1000 strokes	rev/min 8	Control rod travel mm
LDA 650	0,7 bar 184,0-187,0 (181,0-190,0)	940-950 *	LDA 900 LDA 600	0,7 bar 181,0-186,0 (178,0-189,0) 0 bar 129,0-132,0 (126,0-135,0)	100	310,0-350 (306,0-354 19,0-23, (16,0-26,	,0) 0	-

Checking values in brackets

* 1 mm less control rod travel than col 2

7.84

Geschaftsbereich KM. Kundendienst. Kfz-Ausrustung.
1980 by Robert Bosch GmbH. Postfach 50, D-7000 Stuttgart 1. Printed in the Federule Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

Test at n - 600	rev/rnin decreasing pressure - in	bar gauge pressure	DAF 11,6 o 1
Pump/governor	Setting Gauge pressure bar	Measurement Gauge pressure = bar	Control rod travel- difference mm (1)
PE 6 PRS 415 + RSVP 5/475	0,70	0 0,27 0,12	11,9-12,0 9,8-9,9 11,4-11,5 10,0-10,6

Notes

(1) when n

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

DAF 11,6 o 1 - 2 -

Test Specifications Fuel Injection Pumps (1A) WPP 001/4 DAF 11,6 . 3 and Governors

2. Ausgabe

En

PE 6 P 120 A 320 RS 415-1 Komb.-Nr. 0 401 876 259

RSV 250-900 P 5/475

supersedes 12.82

DAF company

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test

DKS-E 1160 engine 206 kW (280 PS)

tubing 1 680 750 067 All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Note VDT-I-420/114

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 411

(2,75-2,95)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ¹ /100 strokes 3	Difference cm ^{-//} 100 strokes 4	Control rod travet mm	Fuel delivery cm*/100 strokes	Spring pre-tensioning (torque-control valve) mm 6
650	11,9+0,1	18,4-18,7	0,5(0,9)			
250	6,7-6,9	1,9-2,3	0,8(1,2)			
1			1			
			·			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

	r rated speed	1 rev/min 1 Control rod	Intermed	diate rated	-peed	0	Lower	rated speed	11 9 1	rque control
Degree of deflection of control	travel mm	travel mm rev/min				Control- lever deflection	rev/min	travel		Control rod travel
lever 1	2	3	4	5	6	in degrees 7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 24	250	6,3	650	12,1-12,2
	x =	5,0					250	6,7-6,9	900	11,4-11,6
ca.46		940-950					395-45	= 2,0		
23		1025-1055 0,3-1,7				:				

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop emp_40°C (104°F)	6 Rotational- speed limitat		uel delivery naracteristics	Starting I	uel delivery 5	43 ld	4a Idle stop	
rev/min	cm1/1000 strokes	Note changed to .) rev/min 3	r ev/m in 4	cm³/1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control root travel mm	
LDA 650	0,7 bar 184,0-187,0 (181,0-190,0)	940-950*	LDA 900 LDA 600	0,7 bar 181,0-186,0 (178,0-189,0) 0 bar 129,0-132,0 (126,0-135,0)	100 250	310,0-350, (306,0-354 19,0-23,0 (16,0-26,0	,0)	- -	

Checking values in brackets

* 1 mm less control rod travel than col 2

Geschäftsbereich KH. Kundendienst. Kfz-Ausrustung.

1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

DAF 11,6 o 3

- 2 -

Testatn =

600

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE6P RS 415-1 + RSV P 5/475	0,70	0 0,27 0,12	11,9-12,0 9,8-9,9 11,4-11,5 10,0-10,6

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 DAF 11,6 o 6 1. Edition

En

PE 6 P 120 A 320 RS 415-1 RSV 250-1100P5/458-2 Values only apply to test nozzle-and-holder assembly 1 688 901 G'; and fuel-injection test tubing 1 680 750 067

company DAF
DKV 1160
engine Nr. 0 401 876 273

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Note VDT-I-420/114

A. Fuel Injection Pump Settings

2,8-2,9Port closing at prestroke(2,75 - 2,95)

mm (from BDC)

Rotational speed	Control rod	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensioning (torque-control valve)		
rev/min 1	mm 2	cm/100 strokes 3	cm ^{-/} 100 strokes 4	mm 2	cm / 100 strokes	mm 6		
650	11,6+0,1	17,6-17,8	0,5 (0,9)					
250	6,5-6,7	1,4 - 2,0	0,8 (1,2)					
				•				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	r rated speed		Interme	diate rated	speed	(A)	Lower	rated speed	(3) 10	rque control
Degree of deflection of control	Control rod travel mm	control rod travel mm rev/min				Control- lever deflection	rev/min	Control rod travel	rev/min	Control rod travel
lever 1	2	3	4	5	6	in degrees 7	8	9	10	11
loose	800	0,1-1,0	-	-	-	ca. 24	250	5,8	650	11,8 -11,
	×	= 5,0					250	6,2 - 6,4	1100	10,6 -10,
ca. 53	9,6 4,0 1390	1135-1145 1225-1255 0,3-1,7					645-705	= 2,0	800 875	11,5 -11, 10,9 -11,

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop	6 Rotational- speed limitat		uel delivery paracteristics	Starting t	uel delivery 5	4a Idle stop		
rev/min	emp 40°C (104°F) cm³/1000 strokes 2	Note changed to) rev/min 3	rev/min 4	cm ^{1/1000} strokes 5	rev/min 6	cm³/1000 strokes	rev/min 8	Control rod travel mm	
LDA 650	0,7 bar 175,5-177,5	1135-1145*	LDA 1090	0,7 bar 164,0 - 170,0	100	315,0-335 (311,0-33		6,3	
	(172,5-180,5)		LDA 600	(161,0 - 173,0) 0 bar 147,0-149,0 (144,0-152,0)	·				

Checking values in brackets

* 1 mm less control rod travel than col 2

7.84

BOSCH

DAF 11,6 o 6

-2-

Test at n =

500 rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travet- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 6 P., RS 415-1	0,70		11,6 - 11,7
+ RSVP 5/458-2		0 0,44 0,35	10,5 - 10,6 11,3 - 11,4 10,6 - 11,0

Notes

(1) when n

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

C6,

estoil 150 4113

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 RVI 8,8 d 1

3. Edition

PES 6 P 120 A 320 RS 419 RQV 275-1100 PA 495 Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersed \$283 companyRVI engine. MIDR 062045 206 kW (280 PS)

> Komb.-Nr. 0 402 046 249

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing mark 10,5° after port closing cylinder 1

Port closing at pres	stroke	(2.75-2.95)	mm (from EDC)	por	rt closing cyli	nder 1
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1100	9,7-9,8	17,6-17,8	0,5(0,9)			
275	5,0-5,2	1,9-2,5	0,8(1,2)			
				1		
 						
					ŀ	}

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed			Intermediate	rated ap	oo d	Lower rated	speed		Stiding	leeve travel
Degree of deflection of control lever	rod travel	Control rod travel mm rev/min 3	0	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3		mm 11
max.	1150	15,2-17	8	-	•	•	ca. 8	200	min.5,1	250	1,0-1,2
ca. 64		1155-116 1220-125 0-1,0	50				280-395	275	3,3-3,5	530	3,0-4,6 5,9-6,1 8,1
							3				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed (2b) limitation intermediate speed	Fuel deli- high idle s		Starting Idle switching		Torque- travel	control 5
rev/min	cm³/1000 strokes	rev/min 44	rev/min	cm ³ /1000 strokes	rev/min cm³/1000 strokes		rev/min	travel mm
LDA 1100	0,7 bar 175,5-177,5 (172,5-180,5		LDA 700	0,7 bar 163,0-171,0 (160,0-174,0)		150,0-170,0 (146,0-174,0)		_

Checking values in brackets

• 1 mm less control rod travel than col. 2

RVI 8,8 d 1

- 2

Test at n

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure bar	Gauge pressure = bar	mm (1)
PES 6 PRS 419 + RQVPA 495	υ,70	0 0,25 0,20	9,7-9,8 7,7-7,9 9,1-9,2 8,2-8,4

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 RVI 9,8 a 3 1. Edition

PES 6 P 120 A 320 RS 419 RQV 275-1100 PA 495-5 Komb.-Nr. 0 402 046 300 Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes _ companyRVI engine MIDR 062045 191 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

2,8-2,9

A. Fuel Injection Pump Settings

Port closing mark 10,5° after port closing cylinder 1

Sout closing at bres	12	75-2.95)	mm (Irom BUC)			
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	9,7-9,8	16,4 - 16,6	0,5 (0,9)			
275	4,9-5,1	1,7 - 2,3	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed			Intermediate	rated sp	eed	Lower rated	speed		Sliding	leeve travel
deflection	rev/min Control	Control rod	©	Degree of deflection of control		Control rod travel	Degree of deflection		Control rod travel	J	0
	rod travel	rev/min	②		rov/min	mm (4	of control lever	rev/min	mm ③	rev/min	mm
1	2	3		4	5	6	7	8	9	10	11
ma <u>x</u> .	1150	15,2 -	17,	<u>8</u> -	-	-	ca.9	100 1	nin.5,3	250	1,0-1,2
ca. 64	8,7	1155-11	65			٠		275	3,6-3,8	450	3,4-3,8
	4,0	1215-12	45							850	6,1-6,3
	1350	^ - 1	,0				285-400			100	8,1
							(3)	L			

Torque control travel a = ___ mn

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed (2 ilmitation intermediate speed	Fuel deli- high idle :	very characteristics 5a	Starting Idle switchir	. •	Torque- travel	control 5
rev/min	cm³/1000 strokes	rev/min	rev/min	cm³/1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
LDA 1100	0,7 bar 164,0-166,0	1155-1165 *	LDA 700	0,7 bar 152,0-158,0	100	140,0-160,0 (136,0-164,0)	-	-
	(161,0-169,0		LDA 500	(149,0-161,0) O bar 100,0-102,0 (97,0-105,0)	275	3,6-3,8mm RW		

Checking values in brackets

* 1 mm less control rod travel than col 2

7.84

*/; (3)

RVI 9,8 a 3

-2-

Test	at	n

500 rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel- difference
• • • • • • • • • • • • • • • • • • • •	Gauge pressure = ba	r Gauge pressure = bar	mm (1) .
PES 6P RS 419 + RQV PA 495-5	0,70	0 0,23 0,20	9,7-9,8 8,5-8,6 9,3-9,4 8,7-8,9

Notes

(1) when n

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 RVI 9.8 a 4

1. Edition

ROV 275-1100 PA 495-6 PES 6 P 120 A 320 RS 419 Komb-Nr. 0 402 046 302 Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes_

company: RVI

engine. MIDR 062030

191 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

2.8 - 2.9

A. Fuel Injection Pump Settings

Port closing mark 10.5° after port closing cylinder 1

Port closing at pres	troke	75 - 2 95)	mm (from BDC)			
Rotational speed	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1100	10,6+0,1	17,4 - 17,6	0,5 (0,9)			
275	4,1-4,3	0,9 - 1,5	0,8 (1,2)			
						·

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed				Intermediate	rated sp	eed	Lower rated	speed		Sliding sleeve trave		
Degree of deflection of control	rev/min Control rod travel	Control rod travel	(a)	Degree of deflection of control		Control rad travel	Degree of deflection of control		Control rod travel			
lever	mm	rev/min	20	lever	rev/min	mm (4)		rev/min	mm ③	rev/min	mm	
1	2	3		4	5.	6	7	8	9	10	11	
max.	1150	15,2 -	17,8	-	-	-	ca.9	200	min.5,9	250	1,0-1,2	
ca.64			1165					275	4,1 - 4,3	475	3,5-4,0	
			1260							900	6,4-6,6	
	1350	0 - 1,	U				290-400	j		1100	8,1	
	ļ į						3 a)					
										ليبيا		

Torque control travel a

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter		Rotational-speed (2b) fimitation intermediate speed	Fuel delic high idle s	very characteristics 56 speed 50	Starting Idle switchle		Torque- travel	control (5)
rev/min	cm³/1000 strokes	rev/min 49	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	_
		3	-	3	-	<u> </u>	8	9
LDA 1100	0,7 bar 174,0-176,0 (171,0-179,0)	1155 - 1165*	LDA 700	0,7 bar 160,0-166,0 (157,0-169,0)		140,0-160,0 (136,0-164,0) 4,1-4,3mmRW	-	-
			LDA 500	0 bar 94,0-96,0 (91,0-99,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

RVI 9,8 a 4

7	_

Test at n

500 rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure bar	Gauge pressure : bar	mm (1) ,
PES 6 P RS 419	0,70		10,6 - 10,7
+ RQVPA 495-6		0	8,4 - 8,5
		0,27	10,0 - 10,1
		0,22	8,9 - 9,1

Notes

(1) when n

rev/min and gauge pressure =

bar (~ maximum full-load control rod travel)

C12

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 RVI 9,8 a 5

1. Edition

PES 6 P 120 A 320 RS 419 RQV 275-1100 PA 495-7 Komb.-Nr. 0 402 046 303 Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

companyRVI engine MIDR 062045 157 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel injection Pump Settings

Port closing at pres	troke	2,8-2,9 (2,75-2,95)	mm (from BDG)						
Rotational speed rev/min		Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6			
1100	7,8-7,9	13,2-13,4	0,5(0,9)						
275	4,6-4,8	1,7-2,3	0,8(1,2)						
				after po	sing mark at 19 rt closing for ol-rod travel	1st. cylinder			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	Opper rated speed			Intermediate	rated ap	eed	Lower rated	speed		Sliding sleeve travel	
deflection	rev/min Control	(LEAG1	(1)	Degree of deflection of control		Control rod travel	Degree of deflection		Control rod travel		0
lever 1	rod travel mm 2	rev/min 3	20		rev/min 5	mm 4	of control lever 7	rev/min 8	mm 3	rev/min 10	mm 11
max.	1150	15,2-17	8	-	-	-	ca. 8	200	min. 5,0	275	1,5-1,6
ca. 64		1155-116						275	3,4 - 3,6	450 850	3,4-3,8 6,1-6,3
	1350	1195~122 0-1,0					280-395			1100	8,1
							3				

Torque control travel a =

- mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		Rotational-speed 2b limitation intermediate speed			Starting idle switchin		Torque-control (travel	
rev/min	cm ³ /1000 strokes	rev/min 4e	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA 1100	0,7 bar 132,0-134,0 (129,0-137,0)	1155-1165*	LDA 700 LDA 500	0,7 bar 120,0-126,0 (117,0-129,0) 0 bar 88,0-90,0 (85,0-93,0)		150,0-170,0 (146,0-174,0) 3,4-3,6 mm RW		-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testatn -

500

rev/min decreasing pressure - in bar gauge pressure

RVI 9,8 a 5

- 2 -

300				
Pump/governor	Setting	Measurement	Control rod travel	diminution difference
••	Gauge pressure = bar	Gauge pressure = bar	mm (1)	
PES 6 PRS 419 + RQVPA 495-7	0,70	0		7,8-7,9 7,3-7,4
		0,16		7,5-7,6

Notes

(1) when n

rev/min and gauge pressure =

bar (= maximum full-foad control rod travel)

C14

estoi-150 41

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 RVI 8,8 d 2

1. Edition

__E

PES 6 P 120 A 320 RS 419-2 RQV 275-1050 PA 495-4 Komb.-Nr. 0 402 046 294 Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes companyRVI engine: MIDS 062045 169 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

2.8-2.9

A. Fuel Injection Pump Settings

Port closing mark at 9,5° cam shaft after port closing for 1st. cylinder at control-rod travel 9.0-12.0 mm

Port closing at pres	stroke	(2 75-2 95)	mm (from BDÇ)	at cont	rol-rod travel	9.0-12.0 mm.
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	8,8-8,9	15,5-15,7	0,5(0,9)			
275	3,3-3,5	0,7-1,3	0,8(1,2)			
					Į.	!

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed		Intermediate	rated sp	eed	Lower rated	speed		Stidion	leeve travel
Degree of deflection of control	rev/min Control rod travel	Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		1
lever 1	mm 2	rev/min (28)	lever 4	rev/min 5	jmm (4)	lever 7	rev/min 8	mm (3)	rev/min	mm 11
max.	1130	15,2-17,8	-	-	-	ca. 8	200	min.5,2	250	1,0-1,2
ca. 63	7,8 4,0	1105-1115 1135-1165					275	3,3-3,5		4,8-5,0
Ì	1300	0-1,0				275-390				
						3a				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-rot Test oil ten	d stop np 40°C (104°F) 2	limitation intermediate speed	Fuel delivery characteristics 5e Starting tidle speed 50 switchin			• . •	Torque- travel	Control rod
rev/min	cm ³ /1000 strokes	rev/min 40	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	mm .
1	2	3	4	5	6	7	8	9
LDA 1050	0,7 bar 155,0-157,0 (152,0-160,0		LDA 700 LDA 500	0,7 bar 145,0-151,0 (142,0-154,0 0 bar 106,0-108,0 (103,0-111,0	⁾ 275	140,0-160,0 (136,0-164,0) 7,0-13,0	•	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.84

BOSCH

RVI 8,8 d 2

. 2 -

Test at n

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure - bar	Gauge pressure = bar	mm (1)
PES 6 PRS 419-2 + RQVPA 495-4	0,70	0 0,24 0,23	8,8-8,9 8,0-8,2 8,5-8,6 8,2-8,4

Notes

(1) when n

rev/min and gauge pressure =

bar (- maximum full-load control rod travel)

Teston-150 4113

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 RVI 8,8 d 3

1. Edition

PES 6 P 120 A 320 RS 419-2 RQV 275-950 PA 698 Komb.-Nr. 0 402 046 293 Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes
company RVI
engine MIDS 06:2045
129 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings
2,8-2,9
Port closing at prestroke (2,75-2,95) mm

Port closing mark at 9,5° cam shaft after port closing for 1st. cylinder mm (from BDG) at control-rod travel 9.0-12.0 mm.

Rotational speed rev/min 1		Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
500 275	8,0-8,1 4,4-4,6		0,5(0,9) 0,8(1,2)			:

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	speed	•	Intermediat	e rated sp	eed	Lower rated	speed		Clisting	leave terus
Degree of deflection of control lever	rev/min Control rod travel mm 2	Control rod travel mm rev/min 2a	deflection	rev/min 5	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm 3 9	rev/min	mm
max.	1070	15,2-17,8	-	-	-	ca. 8		min. 5,1		1,5-1,6
ca. 62	7,0 4,0 1200	1010-1020 1045-1075 0-1,0				280-395		3,3 - 3,5		3,8-4,3 6,4-6,7 7,6
						3 a)				

Torque control travel a = 0,6 mm

C. Settings for Fuel Injection Pump with Fitted Governor

500 106,0-108,0 1010-1020* 950 124,0-130,0 100 150,0-170,0 500 8,0 (103,0-111,0) 100 121,0-133,0 100 146,0-164,0 950 7,3 750 7,6	Full-load d Control-ro- Test oil ten	rod stop temp 40°C (104°F) (2) limitation intermediate speed (50)		Starting Idle switchli		Torque travel	-control 5		
500 106,0-108,0 1010-1020* 950 124,0-130,0 100 150,0-170,0 500 8,0 (103,0-111,0) (121,0-133,0) (146,0-164,0 950 7,3 750 7,6	rev/min	cm³/1000 strokes	rev/min 4a	rev/min	rev/min cm³/1000 strokes		cm³/1000 strokes	rav/min	travel mm
(103,0-111,0) (121,0-133,0) (146,0-164,0) 950 7,3 750 7,6	1	2	3	4	5	6	7	8	9
	500		1010-1020*	950			(146,0-164,0	950 750	8,0-8,1 7,3-7,4 7,6-7,8 7,4-7,7

Chucking values in brackets

* 1 mm less control rod travel than col. 2

7.84

C17

BOSCH

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 11,4 s

En

1. Edition

PES 6 P 110 A 820 LS 422

RQV 300-1100 PA 594-5

Komb.-Nr. 0 402 046 305

supersedes...

company.

Daimler-Benz OM 407 147 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	THOUGH .	95_3 15)	mm (from BDC)					
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)		
rev/min 1	mm 2	cm ³ /100 strokes 3	cm³/ 100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6		
1100	10,2+0,1	11,0 - 11,2	0,4 (0,8)					
300	8,0 -8,2	1,4 - 2,0	0,4 (0,7)					
600	-	C, Sp. 4 u. 5.	0,6 (0,9)	٠				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed		Stidiog	leeve travel	
deflection	rev/ min Control	travel	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel	Stiding sleeve travel		
	rod travel mm 2	rev/min (2	of control lever	rev/min 5	mm (4	of control lever 7	rev/min	mm 3	rev/min 10	mm 11	
max. 11	00	5,2 - 17,	8 -	-	•	ca. 32	100	min. 8,8	250	1,0 -1,2	
ca.59	9,2 4,0 1350	1140-1150 1175-1205 0 - 1,5					300	7,3-7,5		3,5-3,7 5,0-5,4 7,7	
						300-500 ③				. ,	

Torque contro: travel a = _ _ mn

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		intermediate speed	high idle s	very characteristics 5a	Starting idle switching	. •	Torque- travel	Control rod
rev/min	cm³/1000 strokes	rev/min 4e	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
1100	110,0-112,0 (107,0-115,0	1140-1150 *	600	93,0 - 97,0 (90,0-100,0)	100	130,0-150,0 (126,0-154,0)		-

Chucking values in brackets

* 1 mm less control rod travel than col. 2 7 . 84

BOSCH

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 1 WPP 001/4 RVI 12,0 c and Governors 3.

Edition

PES 6 P 120 A 320 RS 426

ROV 250-1100 PA 570

supersedes5.83 company: RVI

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

engine MIDS 063540 195 kW (265 PS)

Komb.- Nr. 0 402 046 219

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Yesters

A. Fuel Injection Pump Settings 2.8-2.9

Mark for start of pump delivery on tester body 12° after start of pump delivery, cyl.1

Rotational speed	Control rod travel	(2,75=2,95) Fuel delivery cm³/100 strokes	Difference cm ³ / 100 strokes	Control rod travel	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve)
1	2	3	4	2	3	6
650	10,3+0,1	18,0 - 18,3	0,5(0,9)			
250	4,9-5,1	1,3 - 1,9	0,8 (1,2)			
				,		
					1	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed			Intermediate	rated sp	ed		Lower rated	speed		Sliding sleeve travel	
deflection	rev/min Control rod travel	Control rod travel mm		Degree of deflection of control		Control re travel	od	Degree of deflection of control		Control rod travel		<u> </u>
lever 1	mm 2	rev/min (29	lever	rev/min 5	mm 6	(1)	lever	rev/min	mm (3)		rom m
·	-			·		-			8	9	10	11
max.		15,2-17		-	-	-			100	min. 5,5		0,7-1,0
ca.61	8,3	1145-11: 1220-12:							250	3,9-4,1	500	3,4-3,6
	4,0 1400	0-12						275-403			800 100	4,8 -4 ,9
! !												- 50
								3				

Torque control travel a = 1.2

C. Settings for Fuel Injection Pump with Fitted Governor

Fulf-load d Control-ro Test oil ter		Rotational-speed limitation intermediate speed		Fuel delin high idle s		Starting Idle switchir	. 0	Torque- travel	-control (5)
rev/min 1	cm³/1000 strokes	rev/min 3	•	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes	rev/min 8	travel mm 9
LDA 650	0,7 bar 180,0-183,0 (177,0-186,0)	1140-1150	*	LDA 1100 LDA 500	0,7 bar 170,0-173,0 (167,0-176,0) 0 bar 122,0-126,0 (119,0-129,0)	100	135,0-155,0 (131,0-159,0)650 1030	9,1+0,2 10,3+0,1 9,4+0,1 9,9+0,2

Checking values in brackets

1 mm less control rod travel than cct. 2

RVI 12.0 c - 2

Testatn

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel-
	Gauge pressure bar		difference mm (1)
PFS 6 P RS 426 + PA 570	0,9	0 0,29 0,24	10,3 - 10,4 8,6 - 8,7 9,8 - 9,9 9,0 - 9,2

Notes

(1) when n

rev/min and gauge pressure :

bar (* maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 11,4n

3. Edition

estoil-ISO 4113

PES 6 P 100 A 820 LS 432

RSV 350-750 P1/487

Komb.-Nr. 0 402 076 051

supersedes 3.82
Company Daimler-Benz OM 407 engine 114 kW (155 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,0 - 3,1 (2.95-3.15) mm (from BDC) Zy1. 6 Port closing at prestroke

Rotational speed rev/min t	Control rod travel mm 2	Fuel delivery cm³/100 strokes	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	14,2+0,1	12,9 - 13,1	0,3(0,6)			
350	8,4-8,6	1,2 - 1,8	0,3(0,5)			
	}				ĺ	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lowe	rated spe	red	3 To:	lorinos eup
Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		Centrol rod travel
lever	rev/min	mm '	lever	rev/min 5	mm 6	lever	rev/min 8	mm 9	rev/min 10	mm 11
<u> </u>		3	-	3	0	'	•	9	10	
loose	800	0,3 - 1,0	-	-	-	-	-	-	-	-
	x =	2,25	,							
€a.34	13,2 4,0	750-755 788-801								
	850	0,3-1,7	<u> </u>			L	<u> </u>	<u></u>		<u> </u>

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-l	oad stop	6 Rotational- speed limitat.		el delivery sracteristics	Starting Idle	fuel delivery	5a idle stop		
Test oil ten rev/min 1		Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min	Control rod travel mm	
700 [°]	129, 0-131, 0 (127, 0-133, 0)	750-755 *	-	-	-	-	-	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

WPP 001/4 MB 9.5 a 2

3. Edition

PES 5 P 110 A 820 LS 434

RSV 350-750 P 1/487

1 - 3 - 5 - 4 - 2 je $72^{\circ} - 0.5^{\circ} (-0.75^{\circ})$

supersede 7.83 Daimler-Benz OM 409

Komb.-Nr. 0 402 075 001

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closirig at prestroke

mm (from BDO)y1.5; RW = 9.0 - 12.0 mm

Rotatiorial speed	Control rod travel	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve)
1	2	3	4	2	3	6
730	13,1+0,1	13,5 - 13,7	0,4(0,8)			
350	7,7 -7,9	1,1 - 1,7	0,4(0,7)			
			5		ĺ	
			·			
					<u>L</u>	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lowe	rated spe	ed	(3) Tor	que controi
Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control	İ	Control rod travel		Control rod travel
lever	rev/min	mm	lever	rev/min	mm	lever	rev/min	ram .	rev/min	unus.
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	-	-	-	•	-	•
	x =	2,5								
5 . 34	12,1 4,0 850	750-755 790-803 0,3-1,7						ţ		

^{*} Set idle auxiliary spring at 2,0 mm.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-	load stop	6 Rotational- speed limitat.		3a) Fuel delivery characteristics		fuel delivery	5a Idle stop		
Test oil ter rev/min 1	np. 40°C (104°F) cm³/1000 strokes 2	Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ^{1/1000} strokes	rev/min	Control rod travel mm 9	
730	135,0-137,0 (132,0-140,0	750-755*	-	•	100	130,0-150,0 126,0-154,0) -	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-iSO 4113

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 9,5 a 4 3. Edition

En

PES5P110A820 LS 434

RQ300/1100 PA 327-4

supersedes7.83
company Daimler-Benz

Komb.-Nr. 0 402 045 023

engine OM 409

1 - 3 - 5 - 4 - 2 je $72^{\circ} \pm 0.50^{\circ} (\pm 0.75^{\circ})$

135 kW (184 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel injection Pump Settings

Port closing at prestroke

||3,0~3,1 |2.05_2.15\

mm (from BDC) 1. 5

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,4+0,1		0,4(0,8)			
300	7,6-7,8	1,2 - 1,8	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

PRG che rev/min 1	Control rod travel mm	Full-load Setting p rev/min 3		-	cifications (4)	Idle spe Setting p rev/min 7	Control red travel		cifications 5 Control rod travel mm	Torque o	Control rod	3
600	13,8-14,6	600	14,2	9,4 4,0 1300	1175-1205		7,1	300	min.9,1 7,6-7,8 420=2,0	•	-	

Torque-control travel on flyweight assembly dimension a =

mm

1145-1160 min

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

gove	ernor co	elivery on ontrol lever ip. 40°C (104°F)	Control rod stop	3 a	Fuel deliv	ery characteristics	36)	Starting t	fuel delivery
rev/r		cm³/-1000 strokes 2	rev/min 3		rev/min 4	cm ³ /-1000 strokes		rev/min 6	red travel cm ³ /1000 strokes / mm 7
	100	(107,5-114,5)			600	90,0-94,0 (87,0-97,0)		100	130,0-150,0 (126,0-154,0)

Checking values in brackets

8.84

BOSCH

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STATE OSTATION

Test Specifications Fuel Injection Pumps 1 APP 001/4 CAT 7,0 a 1. Edition and Governors

PES 4 P 80 A 720 LS 440 ROV 375-1100 PA 610

company Caterpillar engine 3304 NA 100 PS

supersedes

Komb.-Nr. 9 400 087 277

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel injection Pump Settings

Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /1 00 strokes 3	100 strokes	mm 2	cm ³ /100 strokes 3	mm 6
1100	13,0+0,1	11,2-11,3	0,2(0,35			
375	6,7-6,9	1,0-1,7	0,2(0,3)			

delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed				Intermediate rated speed				Lower rated speed				Sliding sleeve travel		
Degree of deflection of control lever	rev/min Control rod travel mm	TEVET	0	Degree of deflection of control lever	rev/min	Control re travel		Degree of deflection of control lever	rev/min	Controi travei mm	rod (3)	fev/min	(①
1	5	3		4	5	6		7	8	9		10	11	
max.	1030	15,2-17	7,8	-	-	-		ca. 14		min.		1100	8,	,3
ca.67	12,1 4,0 1350	1130-11 1230-12 0 - 1,	260					350-450	480-5	5,9. 540 =	2,0			
								③						

Torque control travel a

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-roo Test oil ten		Rotational-speed 2b firmitation intermediate speed	Fuel deli- high idle :	very characteristics (Se	Starting idle switching	. •	Torque- travel	control (5)
rev/min	cm ³ /1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	
1100	112,0-113,0 (110,5-114,5)	1130-1140 *	700	107,5-110,5 (106,5-111,5		152,0-172,0 = 17,6-18,6 mm RW 5,9-6,1 mm RW	-	-

Checking value, in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 DAF 11,6 u 2 2. Edition

En

PE 6 P 110 A 720 RS 441-1

RSV 250-750 P 7/479-1

Komb.-Nr. 0 401 876 270

supersedes 7 • 83 Company engine DHS 825 A

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,8 - 2,9 (2,75-2,95)

mm (from BDC)

	cm '/100 strokes 3	travel mm 2	cm ^{-/} 100 strokes 4	Fuel delivery cm/100 strokes 3	mm 2	speed rev/min 1
			0,4(0,75)	14,3-14,6	11,6+0,1	750
1			0,45(0,75)	0,9-1,3	4,8-5,0	250
				•		
·						
_			0,45(0,75)	0,9-1,3	4,8-5,0	250

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1) Uppe	r rated speed		Interme	diate rater	l speed	(4)	Lower	rated speed	(3) 10	orque control
Degree of deflection of control lever	Control rod travet mm	Control rod travel mm rev/min 3	4	5	6	Control- lever deflection in degrees 7	rev/min 8	Control rod travel mm	rev/min	Control rod travel mm
loose	800 x =	0,3-1,0 4,0	-	-	-	ca. 18	250	4,9 4,8-5,0	-	-
ca. 45 2a	10,6 4,0 950	790-795 810-825 0,3-1,7					250-29	0 = 2,0 **		

The numbers denote the sequence of the tests

** Set idle auxiliary spring at 2,0 mm.

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop emp_40°C (104°F)	Rotational- speed limitat	otational- eed limitat Starting Characteristics Starting		Starting (uel delivery 5	49 ld	e stop
rev/min	cm/1000 strokes	Note changed to) rev/min	rev/min 4	cm ^{1/1} 000 strokes 5	rev/min	cm ¹ /1000 strokes	rev/min 8	Control rod travel mm
750	143,0-146,0 (140,5-148,5)	790-795*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

WPP 001/4 MB 11.4 1 4

4. Edition

7.83

supersedes

Daimler-Benz

OM 407

121 kW

PES 6 P 110 A 820 LS 442

Komb.-Nr. 0 402 076 052

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3.15 - 3.35)

mm (from BDCZyl. 6

RSV 350-750 P 1/487

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm ³ / 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
730	12,1+0,	11,9 - 12,1	0,4(0,8)			
350	8,1-8,3	1,3 - 2,1	0,4(0,7)			
	1			i]	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper Degree of deflection of control lever	deflection travel of control		deflection travel of control			4 Lower Degree of deflection of control lever		Control rod travel		que control Control rod travel
1	2	3	4	5	6	7	8	9	10	11
loose	800 x=	0,3-1,0	-	•	-	•	-	-	•	•
§ 6.35	11,1 4,0 850	750-755	ත 							

^{*} Set idle auxiliary spring at 2,0 mm.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-to	oad stop	6 Rotational- speed limitat. 3a Fuel delivery characteristics			Starting Idle	fuel delivery	5a) Idle stop		
Test oil tem rev/min 1		Note: changed to rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7		Control rod travel mm	
730	119,0 - 121,0 (116,0 - 124,0	750-755*)	-	-	100	130,0-150,0 (126,0-154,	0)	•	

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps 2 and Governors

40

WPP 001/4 MB 11,4 1 9

1. Edition

PES 6 P 110 A 820 LS 442 Komb.-Nr. 0 402 046 298

RQ 250/1100 PA 327-8

supersedes

company Daimler-Benz

engine: OM 407

162 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3.15 - 3.35)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,0+0,	11,6-11,8	0,4 (0,8)		
250	8,0-8,	1,2 - 1,8	0,4 (0,7)		
600	-	C, Sp.4 u. 5	0,6 (0,9)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	-	1	Full-load : Setting po	•	•	cifications (4)	Idle spec	•		cifications (5)	Torque (control 3
rev/min	Control rod travel mm 2		rev/min 3	Centrel red travel rnm 4	Centrel red travel mm 5	rev/min 6	rev/min 7	Cambrel rad travel more 8	rev/min 9	Control rod travel mm	rev/min	Control rod (
550	13,0 -	14,	0 550	13,5		1145-1160 1180-1210 0 - 1,0	250		250	min. 9,0 7,5-7,7 70 = 2,0	•	-

Torque-control travel on flyweight assembly dimension a

n Spee

1145 - 1160 min.

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on ontrol lever p. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics 3b	Starting t	luel delivery
rev/min 1	cm³/~1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	red travel cm³/1000 strokes:/ mm 7
1100	116,0 - 118,0 (113,5 - 120,5)		600	93,0 - 97,0 (90,0 - 100,0)	100	130,0 - 150,0 (126,0 - 154,0)

Checking values in brackets

7.84

BOSCH

2

Testoil-ISC 4113

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 11,41 10

1. Edition

En

PE 6 P 110 A 820 LS 442 RQ 250/950 PA 483-2

Komb.-Nr. 0 402 046 299

supersedes

company:Daimler-Benz engine OM 407 147 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3,15-3,35)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
950	11,5+0,	1 11,3-11,5	0,4(0,8)			
250	8,4-8,6	1,4-2,0	0,4(0,7)			
600	-	C, Sp. 4 u. 5	0,6(0,9)			
٤		·				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	g of slider	Full-load	speed re	gulation		idle spe	ed regula	ation		Torque (control
PRG che		Setting po	oint	Test spe	cifications (4)	Setting	point	Test spe	cifications (5)		3
rev/min	Control rod travel mm 2	rev/mir 3	Control rad travel mm 4	Centrel red travel mm 5	rev/min	rev/min 7	Centrel rad travel mm	rev/min 9	Control rod	rev/min	travel
600	13,0-14,0	600	13,5		995-1010 1015-1045 0-1,0	250	8,1	100 250 330-	min.9,7 8,0-8,2 370=2,0	•	-
	antrol travel						99	5-101	0 min-1		

Torque-control travel on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp 40°C (104°F)	Control rod stop (3a)	Fuel deliv	ery characteristics	36)	Starting to	tuel delivery
rev/min 1 950	cm ³ /-1000 strokes 2	rev/min 3	rev/min	cm ³ /-1000 strokes		rev/min 6	red travel cm ³ /1000 strokes / mm 7
330	(110,0-118,0)		600	102,0-106,0 (99,0-109,0)		100	140,0-160,0 (136,0-164,0)

Checking values in brackets

7.84

BOSCH

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 MB 11,4 L3

4. Edition

Testoil-150 4113

PES 6 P 110 A 820 LS 442

ROV 300-1100 PA 594-3

supersede 7 • 84 Daimler-Benz

engine: 0M 407

162 kH (220 PS)

Komb.-Nr. 0 402 046 233 0 402 046 301

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,2-3,3
Port closing at prestroke (3,15-3,35) mm (from BDC) Zy1. 6

Rotational speed rev/min	Control∓od travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100 300	11,0+0, 8,0-8,2	·	0,4(0,8) 0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed			Intermediate	rated sp	eed		Lower rated	speed			Sliding sleeve travel	
	rev/min Control	Control rod travel	(1)	Degree of deflection		Control r	od	Degree of deflection		Control ro	entrol rod		•
	rod trave mm 2	mm rev/min 3	29	of control lever 4	rev/min 5	mm 6	•	of control lever 7	rev/min 8	mm 9	③	rev/min 10	mm 11
max.	1140	15,2-17,	8	-	-	-		ca.32	100 300	min. 7,3-7		250 530	1,0-1,3 3,9-4,2
ca. 60		1140-115 1175-120 0 - 1,	5					320-459	300	1 7,5-7	,,,	820 1100	5,5-5,8 8,1
								39					

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test off ter		Irmitation intermediate speed	high idle s	rery characteristics (Se peed) (Sb)	Starting idle switchli	• . •	Torque- travel	Control rod
rev/min	cm³/1000 strokes	rev/min 49	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
1100	116,0-118,0 (113,0-121,0)	1140-1150*	600	93,0- 97,0 90,0-100,0)	100	130,0-150,0 126,0-154,0	•	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1) and Governors

WPF 001/4 MB 11,41 11

1. Edition

PES 6 P 110 A 820 LS 442

IZ KŲV

ROV 300-1100 PA 594-4

Komb.-Nr. 0 402 046 229

supersedes

company Daimler-Benz

engine: OM 407

176 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3, 2-3, 3) nm (from BDC)

rev/min r	travel mm 2	cm³/100 strokes 3	cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1100	11,7+0,	1 12,9-13,1	0,4(0,75			
300 600	7,8-8,0 -	1,4-2,0 C, Sp.4 u. 5	0,45(0,79))		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Sattings

deflection of control	rev/min Control rod travel	trevel	9	Intermediate Degree of deflection of control lever	1	Control re travel mm	od ①	Lower rated Degree of deflection of control lever	speed rev/min 8	Control rod travel mm 3	Sliding s rev/min 10	mm
max. ca.61			50 10	•	•		-	ca.30 320-450	300	7.3-7.5	000	1,0-1,2 3,5-3,7 5,0-5,4 7,7

Torque control travel a =

mm

C. Settings for Fuei Injection Pump with Fitted Governor

Full-load de Control-ros Test oil ten		Rotational-speed (20) limitation intermediate speed	Fuel deli- high idle s	very characteristics (5a)	Starting Idle switching	. •	Torque- travel	control (5)
rev/min	cm³/1000 strokes	rev/min 49	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
1100	129,0-131,0 (126,5-133,5)	1140-1150*	600	119,0-123,0 (116,0-126,0)	100	130,0-150,0 (126,0-154,0		-

Checking values in brackets

* 1 mm less control rod travel than col. 2



Test Specifications Fuel Injection Pumps (A) MPP 001/4 MB 11,4 1 6 and Governors

3. Edition

En

PES 6 P 110 A 820 LS 442-1 Komb.-Nr. 0 402 076 053

RSV 350-1100 P 0/485

supersede 7.84 Daimler-Benz OM 407 177 kW (241 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing ai prestroke

3,2 - 3,3 (3,15-3,35)

mm 2	cm/100 strokes 3	cm ^{-/} 100 strokes 4	travel mm 2	Fuel delivery cm*/100 strokes 3	Spring pre-tensioning (torque-control valve) mm
11,7+0,1	12,5-12,7	0,4 (0,8)			
7,8-8,0	1,4-2,0	0,4 (0,7)			-
				·	
	11,7+0,1	11,7+0,1 12,5-12,7	2 3 4 11,7+0,1 12,5-12,7 0,4 (0,8)	2 3 4 2 11,7+0,1 12,5-12,7 0,4 (0,8)	2 3 4 2 3 11,7+0,1 12,5-12,7 0,4 (0,8)

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Degree of deflection of control lever	r rated speed Control rod travel mm	tev/min Control rod travel mm rev/min	Interme	diale rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm	3 To	rque control Control rod travel mm
loose · ca • 51	800 x 10,7 4,0 1250	0,3-1,0 = 3,0 1140-1150 1220-1250 0,3-1,0		•	•		350	7,9 7,8-8,0 5 = 2,0	-	-

The numbers denote the sequence of the tests

C. Settings for Fuel injection Pump with Fitted Governor

	(2b) Full-load stop Test oil temp 40°C (104°F) Rotational Rotatio			uel delivery paracteristics	Starting Idle	fuel delivery 5			
rev/min	cm*/1000 strokes	changed to) rev/min 3	rev/min	cm ¹ /1000 strokes 5	rev/min	cm /1000 strokes 7	rev/min 8	Control rod travel mm 9	
1100	125,0-127,0 (122,0-130,0)	1140-1150*	600	107,0-111,0 (104,0-114,0)	100	140,0-160 136,0-164		-	

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 DAF 8,302 1. Edition

En

PE6P100 A 720 RS 447-1 RSV 250-750 P 7/479-1 Komb.-Nr. 0 401 876 269

supersedes

company

DAF DHT 825 A

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Rump, Settings

Port closing at prestroke

Testoil-ISO 4113

(3,15-3,35)

mm (from BDE) RW = 9,0-12,0 mm

Rotational speed rev/min t	Control rod travel mm 2	Fuel delivery cm/100 strokes 3	Difference cm ^{-/} 100 strokes 4	Control rod travel mm 2	Fuel delivery cm /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	12,7+0,1	14,3-14,5	0,35(0,6)			
250	5,3-5,5	0,9-1,3	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

	r rated speed Control rod travet mm	t rev/min Control rod travel mm rev/min	Intermed	diate i	ated	speed	Controt- tever deflection in degrees 7		rated speed Control rod travel mm	rque control Control rod travel .mm
loose	800 X = 3	0,3-1,0 3,75	-		•	•	ca.17	250 250	5,4 5,3-5,5	
ca.44	4,0 8	790-795 810-825 0,3-1,7						250-295	= 2,0 **	

The numbers denote the sequence of the tests

** Set idle auxiliary spring at 2,0 mm.

C. Settings for Fuel Injection Pump with Fitted Governor

(4)	uil-load stop lemp 40°C (104°F) t j cm /1000 strokes	Rotational- speed limitat Note changed to:) rev/min	3a Fu	et delivery eractenstics cm*/1000 strokes	Starting I Idle rev/min	uet delivery 5	•	Control rod travel mm
750	142,5-144,5 (140,5-146,5)	790-795*	•	-	250	9,0-13,0 (6,5-15,5)	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2



Test Specifications Fuel Injection Pumps 1 and Governors

WFP 001/4 BRE 23.1 a 1

1. Edition

PE 6 P 130 A 320/3 LS 449 ROV 300-750 PA 682

1-6-5-4-3-2

0-75-120-195-240-315° ± 0,5° (± 0,75°)

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test

tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedescompany: Breda engine. ID 36 S-6 V Komb.-Nr. 0 401 836 023

A. Fuel Injection Pump Settings

Port closing at prestroke

(3 45-3 65) mm (from BDC)

		(3,43-3,03)				
Rotational speed	trevel	Fuel delivery	Difference cm ³ /	Control roci travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
750	12,0+0,1	23,0-23,3	0,6(1,0)			
300	6,7-6,9	2,4-3,0	1,0(1,4)			
				1		

Adjust the fuel delivery from each outlet according to the values in E

B. Governor Settings

Upper rated	speed			Intermediate	rated sp	eed	Lower rated	speed		Sliding	deeve travel
Degree of deflection of control lever	rod trave	UUU UEVEI ,		Degree of deffection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever	rev/min 8	Control rod travel mm 3	rev/min 10	(1)
max.	770	15,2-17,	8	-	-	-	ca. 13		in.8,3	300	1,3-1,4
ca. 66		790-800 835-865 0-1,0					325-435		5,7-6,9	600 750	5,3-5,8 8,1
							3				

Torque control travel a

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed (20) limitation intermediate speed	Fuel delh high idle t	very characteristics (5a poed (3b)	Idle	fuel delivery 6	Torque-control (5) travel Control rod	
rev/min	cm³/1000 strokes	rev/min 49	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
750	230,0-233,0 (226,5-236,5)		-	-	7	-	-	-

Chucking values in brackets

* 1 mm less control rod travel than col 2

and Governors

En

WPP 001/4 MAN 11,4 e

1. Edition

PES 6 P 110 A 720 LS 455

Komb.-Nr. 0 402 046 307

RQV 250-1100 PA 674

supersedes companyMAN

engine: D 2566 MTE

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed	Control rod trevel	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes	Control rod travel	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve)
1	2	3	4	2	3	6
800	12,8+0,1	15,9-16,2	0,4(0,75)			
250	6,9-7,1	1,1-1,6	0,45(0,75)		
					ł	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed		Intermediat	rated sp	eed	Lower rated	speed		Sliding	sleeve travel
Degree of deflection of control lever	rev/min Control rod travel mm 2	Control rod travel mm rev/min 2a	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever	rev/min 8	Control rod travel mm 3		0
max. ca. 46	1150 10,5 4,0 1350	15,2-17,8 1140-1150 1205-1235 0-1,0]	-	•	ca. 13	100 250 340-	min.8,5 6,9-7,1 400 = 2,0		1,4-1,7 5,0-5,2 7,9
						③				

Torque control travel a = 1,3 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil te		Rotational-speed (2b) limitation intermediate speed			Starting Idle switchin		Torque- travel	Control 700
rev/min	cm³/1000 strokes	rev/min 46	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	trável mín o "
LDA 800 LDA 1100	0,7 bar 159,0-162,0 (156,5-164,5) 0,7 bar 136,0-140,0 (133,0-143,0)		LDA 650 LDA 500	0,7 bar 160,0-164,0 (157,0-167,0) 0 bar 97,0-100,0 (94,5-102,5)		215,0-235,0 (211,0-239,0)	800 1100 900 1000	12,8+0, 11,5+0, 12,4+0, 11,7+0

Checking values in brackets

* 1 mm less control rod travel than col 2

D. Adjustment Test for Manifold Pressure Compensator

MAN 11,4 e

. 2 -

Te	st	at	n	÷

500

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting		Measurement	diminution Control rod travel- difference
	Gauge pressure -	bar	Gauge pressure bar	mm (1)
PES 6 PLS 455 + RQVPA 674	0,70		0 0,28 0,11	12,8-12,9 10,2-10,3 12,1-12,2 10,7-11,0
				,

fintes

(1) when n

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

0

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,4 e 1

1. Edition

PES 6 P 110 A 720 LS 455

RQV 250-1100 PA 675

supersedes

Komb.-Nr. 0 402 046 284

companyMAN engine: D 2566 MTE 206 kW Bagger

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke (3,0-3,1 (2,95-3,15)	mm (from BDC),	RW = 9.0)-12.0 mm - Zyl	_6
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	cm³/ 100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6
1100	12,1+0,1	14,7-14,9	0,4 (0,8)			
250	6,8-7,0	1,0-1,6	0,4 (0,7)			
			·			,

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	eed	Lower rated	speed	•	Sliding s	ieeve travel
deflection of control	rodtravel	Control rod travel	of control		Control rod travel	Degree of deflection of control		Control rod travel		0
lever	mm 2	rev/min (28)	lever	rev/min	mm (4)	lever 7	rev/min	mm (3)	rev/min 10	mm 11
max.	1150	15,2-17,8		-	-	ca. 13	100	min.8,6		1,4-1,7
	11,1 4,0 1350	1140-1150 1210-1240 0-1,0					250	7,0-7,2 400 = 2,0		5,0-5,2 7,9
						3				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-roo Test oil ten		intermediate speed	high idle s	ruel delivery characteristics (5e) ligh idle speed (50)		fuel delivery 6	Torque- travei	Control rod
rev/min	cm ³ /1000 strokes	rev/min 40	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
1100	147,0-149,0 (144,0-152,0)		1	•	100	225,0-245,0 (221,0-249,0		•

Checking values in brackets

* 1 mm less control rod travel then col. 2

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 CAT 10.5 a

1. Edition

PES 6 P 80 A 720 LS 456 ROV 350-1000 PA 609-1

Komb.-Nr. 9 400 087 292

Port-closing test with/without ROBO diaphragm

company: Caterpillar 3306 T

150 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1,65-1,75 RW = 9.0-12.0 mmPort closing at prestroke mm (from BDC) Difference Rotational speed Control rod **Fuel delivery** Control rod Spring pre-tensioning (torque-control valve) Fuel delivery cm³/ 100 strokes rev/min cm³/100 strokes mm mm cm³/100 atrokes mm 990 12,5+0. 11,1-11,2 0.2(0.35)350 6,7-6.9 0.2(0.3) 1.0-1.7

Adjust the fuel delivery from each outlet according to the values in F

B. Governor Settings

Upper rated s	peed			Intermediate	rated sp	oo d	Lower rated	speed		Sliding	sleeve travel
deflection	rodtravel	Control rod travel mm rev/min 3		Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm (3	rev/min	0
max. ca. 69		15,2-17 1020-103 1090-112 0 - 1,0	0	-	-	-	ca.17	350 510-	nin.11,0 5,9-6,1 570=2,0	325 400 500 800 010	0,5-2,0 2,7-3,1 2,5-4,2 6,1-6,6 8,5
							3				

Torque control travel a 4 .0

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil te				Fuel delivinghidle s	rery characteristics (56)	idle	fuel delivery 6	Torque-control 5 travel Control rod	
rev/min	cm ³ /1000 strokes .	rev/min 3	•	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm³/1000 strokes 7	rev/min 8	travel mm 9
990	111,0-112,0 (109,5-113,5)	1020-1030	*	500 700	117,0-119,0 (114,0-118,0) 114,5-116,5 (113,5-117,5	100 350	=17,6-18,6 mm RW	990 500	12,5+0,1 13,5+0,1 13,4+0,2 12,8+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.84

D13

BOSCH

0

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 2 and Governors

40

WPP 001/4 MAN 11,4 c 2. Edition

En

PES 6 P 120 A 720 LS 457 RQ 750 PA 566 Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersed 83 companyMAN engine D 2566 MLE 198 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes	mm 6
700	12,5+0,1	20,2-20,4	0,5(0,9)			
250	6,1-6,3	1,5-2,1	0,8(1,2)			· .
						1

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

ontrol rod	D			-	cifications (4)	Idle spec Setting p rev/min 7	Centrel red travel	Test spe	cifications Control rod travel mm	rev/min	Control rod 3
•		•	-	11,5 4,0 900	750-755 776-789 0-1,0	•	•	-	•	-	-

Torque-control travel on flyweight assembly dimension a *

n Speed

Speed regulation: 750-755 min-1

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d governor o Test oil ter	letivery on control lever np. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics	36)	Starting fuel delivery Idle speed		
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5		rev/min 6	cm ³ /1000 strokes:/ mm	
700	202,0-204,0 (199,0-207,0)	-	-	-		-	-	

Checking values in brackets

7.84

BOSCH

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Testoil-iSO 4113

Test Specifications Fuel Injection Pumps 2 and Governors

40

WPP 001/4 MAN 11,4 c 1

1. Edition

En

PES 6 P 120 A 720 LS 457 RQ 750 PA 661 Komb.-Nr. 0 402 046 267 Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067 supersedes_

company: MAN

engine: D 2566 MLE

198 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2,95-3,15)

mm (from BDC)Zy1. 6; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,5+0,1	20,2-20,4	0,5(0,8)			
250	6,1-6,3	1,5-2,1	0,8(1,2)			·
			٠			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking PRG check		\sim 1	Full-load speed regulation Setting point Test specifications 4			Idle speed regulation Setting point Test specifications (5)				Torque control		
	Control rod ravel nm 2	rev/mi	Centrel red travel rnm 4	Central rad travel craves	rev/min	rev/min 7	Centrel red travel m.m 8	rev/min	Control rod travel mm	rev/min	travel	
	_		-	11,5 4,0 900	750-755 776-789 0-1,0	•	•	-	•	**	•	

Torque-control travel
on flyweight assembly dimension a =

mar

750 - 755 min-1 Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control fever mp. 40°C (104°F)	Control rod stop 33	Fuel delivery characteristics			Starting fi Idle spee	uel delivery
rev/min 1	cm ³ /-1000 strokes	rev/min 3	rev/min	cm ³ /-1000 strokes		rev/min 6	red travel cm ³ /1000 strokes:/ mm
700	202,0-204,0 (199,0-207,0)	- ',	-	•••		-	· .

Checking values in brackets

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MAN 11.4 d 1

1. Edition

PES 6 P 120 A 720 LS 457 Komb.-Nr. 0 402 046 280

ROV 250-1050 PA 672

supersedes -

company MAN

D 2566 MLE engine:

220 kW Schiff

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel injection Pump Settings

Rotational speed	Control rod	(2,95-3,15) Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensioning
rev/min 1	mm 2	cm ³ /100 strokes 3	cm³/ 100 strokes 4	mm 2	cm³/100 strokes 3	(torque-control valve) mm 8
1050	11,0+0,1	17,4-17,8	0,5(0,9)			
250	6,3-6,5	1,5-2,1	0,65(0,95)		· .
					V	

Adjust the fuel delivery from each outlet according to the values in r

B. Governor Settings

Upper rated :	speed		Intermediate	rated sp	eed	Lower rated	specd		Stiding	leave travel
Dagree of deflection of control	rodtravel	Control rod ta travel	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel		0
lever 1	mm 2	rev/min (28)	lever 4	rev/min 5	mm (4)	lever 7	rev/min 8	mm (3)	rev/min 10	mm ti
max.	1100	15,2-17,8	-	-	-	ca. 11	100	min.7,9	350	2,0-2,5
ca. 63	10,0 4,0 1350	1090-1100 1195-1225 0-1,0					250 385-	\6,3-6,5 445 = 2,0	800 1050	6,4-6,6 8,0-8,2
						3 a				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed 2b limitation intermediate speed	Fuel deli- high idle s	very characteristics (5a)	Starting Idle switchin		Torque- travel	control 5
rev/min	cm³/1000 strokes	rev/min 49	rev/min	cm ² /1000 strokes	rev/min	cm ³ /1000 strokes	r ev/mi n	travel mm
1	2	3	4	5	6	7	8	9
1050	174,0-178,0 (171,0-181,0)	1090-1100*	•	-	100	285,0-305,0 (281,0-309,0)	-	•

Checking values in brackets

* 1 mm less control rod travel than col 2

 \odot

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,4 d 2

1. Edition

PES 6 P 120 A 720 LS 457

RQV 250-1100 PA 672-1

superstides_ company: MAN

enging

Komb.-Nr. 0 402 046 281

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke	2.95-3.15)	mm (from BDC)		, , , , , , , , , , , , , , , , , , , ,	
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1100	12,0+0,1	19,4-19,8	0,5(0,9)			
250	6,3-6,5	1,5-2,1	0,65(0,95)		
						1

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed	1	Intermediate	qa belar e	eed	Lower rated	speed		Sliding a	leeve travel
Degree of daflection of control	Control	travel 🕓	Degree of deflection of control		Control rod travel	Degree of deflection of control	0	Control rod travel		0
lever	rod travel			rev/min	mm (4)	lever	rev/min	mm ③		
'	15	3	•	5	0	/	8	9	10	11
max.	1140	15,2-17,8	-	-	-	ca. 11	100	min.7,9		2,0-2,6
ca. 64	11,0 4,0 1400	1140-1150 1270-1300 0-1,0					250 385-	6,3-6,5 445 = 2,0	900 1100	6,8-7,0 8,2
						3				

Torque control travel a = -

C. Settings for Fuel Injection Pump with Fitted Governor

Full-foad d Control-ro Test oil ten		Rotational-speed 20 timitation intermediate speed	Fuel delic	very characteristics (5e)	Starting idle switching	. •	Torque- travel	control 5 Control rod
rev/min	cm³/1000 strokes	rev/min 49	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
1100	194,0-198,0 (191,0-201,0)		-	-	- 250	- 15,0-21,0 (12,0-24,0)	•	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

7.84

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eschäftsbereich KH. Kundendienbi, Kfz-Ausrustung. by Robert Bosch GmbH, D-7 Stuttgart 1. Postfach 50: Printed in the Federal Republic of Germ vorime en Recublique Faderale of Allemagne per Robert Bosch GmbH.

Test Specifications Fuel Injection Pumps (A) and Governors

WPP 001/4 PEN 7,0 i 1

1. Edition

PE 6 P 110 A 320 RS 465

Komb.-Nr. 0 401 876 268

RSV 200-1200 P 1/305 R

Volvo-Penta TD 70

175 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,0-3,1(2.95-3.15)

mm (from BDC) RW = 9.0-12.0 mm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre tensioning (torque-control valve)
rev/min	mm (2)	cm 1100 strokes	100 strokes	mm	cm //100 strokes	mm
1	2	3	4	2	3	6
700	12,5+0,1	13,0-13,2	0,4(0,75)		1	2,5 ±0,1
200	5,4-5,6	1,6-2,2	0,3(0,6)			(2,2-2,9)
			· ·	1	4	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	r rated speed Control rod travel mm	rev/min Control rod travet mm rev/min	Intermed	diate rated	speed	Control- lever deflection in degrees 7		rated speed Control rod travel mm	3 To	rque control Control rod travel mm
loose	800 x =	0,3-1,0 4,25	-	-	-	ca. 13	200 200	5,0 5,4-5,6	-	-
ca. 55	11,5 4,0 1480	1240-1250 1270-1300 0,3-1,7					280-34	0 = 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

C	ull-load stop emp 40°C (104°F)	Rotational- speed limitat		Fuel delivery characteristics		Starting fuel delivery 5 4a idle st		
rev/min	cm*/1000 strokes	Note changed to) rev/min 3	rev/min 4	cm/1000 strokes	rev/min 6	cm / 1000 strokes 7	rev/min	Control root travel mm
700	130,0-132,0 (127,0-135,0)	1240-1250*	-	-	-	-	•	-
				e				

Checking values in brackets

7.84

Geschaftsbersich KH. Kundendienst. Kfz-Ausrustung.

1980 by Robert Bosch GmbH. Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

^{* 1} mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 RVI 14,9 c 2. Edition

PES 8 P 120 A320 RS 466 RQV 275-1050 PA 665 1-8-4-2-7-3-6-5 je 45° \pm 0,5° (\pm 75°) Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersectes 14
companRYI
MIVS 083530
engine 268 KW
Komb.-Nr.0 402 048 042

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

2.8 - 2.9

A. Fuel Injection Pump Settings

Port closing mark 13° after port closing cylinder 1

((100)	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (forque-control valve) mm 6
9,6-9,7	19,2-19,4	0,5(0,9)			
3,5-3,7	1,7- 2,3	0,8(1,2)			
	Control rod travel mm 2 9,6-9,7	Control rod travel mm cm³/100 strokes 3 9,6-9,7 19,2-19,4	Control rod travel mm cm³/100 strokes 2 9,6-9,7 19,2-19,4 0,5(0,9)	Control rod travel mm cm³/100 strokes 3 9,6-9,7 19,2-19,4 Difference cm³/100 strokes 4 Difference cm³/100 strokes 4 2 0,5(0,9)	Control rod travel mm cm³/100 strokes 3 Difference Control rod travel cm³/100 strokes 4 0,5(0,9) Control rod travel cm³/100 strokes 2 3

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated :	peed			Intermediate	rated sp	eed	Lower rated	speed	_	Stiding	sleeve travel
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	9	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	mm
'	2	3		•	5	6	1	8	9	10	11
max.	1150	15,2-17	,8	-	**	-	ca.8	200	min. 5,2	275	1,5-1,6
ca.63		1105-11 1175-12 0-1,0	75				39	275 275-3	3,5-3,7 325= 2,0	400 525 650 050	3,1-3,4 4,0-4,5 5,0-5,2 7,7

Torque control travel a = _ mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten		Rotational-speed 2b limitation intermediate speed	Fuel deli- high idle s	very cheracteristics (5a)	Starting Idle switchir	• , •	Torque- travel	control 5
rev/min	cm ³ /1000 strokes	rev/min 49	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
LDA 1050	0,9 bar 192,0-194,0 (189,0-197,0)	1105-1115*	LDA 500	0 bar 119,0-121,0 (116,0-124,0)	100	140,0-160,0 136,0-164,0)	•	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Testato 50)() rev/min decreasing pressure - in	bar gauge pressure	RVI 14,9c
Pump/governor	Setting Gauge pressure - bar	Measurement Gauge pressure = bar	diminution Control rod travel- difference
PES8PRS 466 +ROVPA 665	0,90	0 0,30 0,26	9,6 - 9,7 7,7 - 7,8 9,0 - 9,1 8,1 - 8,3

Notes

(1) when n

rev/min and gauge pressure

bar (maximum full-load control rod travel)

-2-

D20

Test Specifications Fuel Injection Pumps (A) and Governors

WPP 001/4 MWM 10,8 a 1. Edition

RSUV 300-750 P 10 A 320 PE 6 P 120 A 320 RS 468 1-6 - 3- 2 - 5 - 4 0-90-120-210-240-330°+0,5°(+0,75°)

supersedes company MWM D-TBD 234 V6 *Romb.-Nr. 0 401 876 278

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers apply to test nozzle-and-holder A. Fuel Injection Pump Settings assembly 1 688 901 019 and fuel-injection test

Port closing at prestroke

astoliso

(2.75-2.95)

tubing 1 680 750 067

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm (2)	cm //100 strokes 3	100 strokes	mm 2	cm ¹ /100 strokes	տու 6
750	9,4-9,5	14,3-14,7	0,5(0,9)		-	
300	6,2-6,4	2,8-3,6	0,8(1,2)			·
	[
			·			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1) Uppe	er rated speed		Interme	ediate rate	ed speed	(4)	Lower	rated speed	(3) 10	rque control
Degree of deflection of control lever 1	Control rod travel mm	Control rod travel mm rev/min 3	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm '	rev/min	Control rod travel mm
loose	800 x=	0,3-1,0 4,0	-	_	د	ca.26	300 300	5,8 6,2-6,4	750 320	9,4-9,5 10,6-11,2
ca.55	8,4 4,0 950	790-800 800-830 0,3-1,7					325-38	=2,0	450	9,4-9,5

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor.

W	ill load stop	6 Rotational- speed limitat		iel delivery Paracteristics	Starting f	uel delivery 5	4a Id	le stop
Test oil to rev/min 1	cm //1000 strokes 2	Note changed to 1 rev/min 3	rev/min 4	cm ¹ /1000 strokes 5	rev/min	cm ¹ /1000 strokes 7	rev/min	Control rod travel mm
750	143.0-147.0 (140.0-150.0)	790-800*	-	-	100	260,0-290 =15,8-16,0 mm RW	.0 -	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung. 1980 by Robert Bosch GmbH. Postfach 50. D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH.

Test Specifications Fuel Injection Pumps (A) and Governors

WPP 001/4 MWM 10,8 a 1 1. Edition

PE 6 P 120 A 320 RS 468

RSUV 300-1150 PO A 324 DR

1- 6- 3 - 2- 5 - 4 0-90-120-210-240-330°+0,5°(+0,75°) Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067 supersedes MWM company

D-TBD 234 V6

enromb.-Nr. 0 401 876 271

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1.3

٠٤ ٠٠ -;

(2,75-2,95)

mm (from BDC)

Rotational speed rev/min	Control rod travel	Fuel delivery cm/100 strokes 3	Cm ^{-/} 100 strokes	Control rod travel mm	Fuel delivery cm*/100 strokes 3	Spring pre tensioning storque-control valver mm
1150	9,4-9,5	14,3-14,7	0,5(0,9)			
300	6,2-6,4	2,8-3,6	0,8(1,2)			
				ļ		
					*	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1) Uppe	er rated speed		Intermed	diate rated	speed	(4)	Lower	rated speed	3 Torque control		
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm	rev/min	Control rod travel mm	
loose	800	0,3-1,0	-	-	-	ca.24	300	5,8	-	-	
	X= 4	4,0					300	6,2-6,4			
ca.66	8,4 4,0 400	1190-1200 1230-1260 0,3-1,7					400-46	J=C ,U			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ill-load stop emp 40°C (104 F)	Rotational speed limitat		uel delivery naracteristics	Starting (luel delivery 5	49 ld	e stop
rev/min	cm ¹ /1000 strokes	changed to) rev/min 3	rev/min	cm ^{-/} 1000 strokes 5	rev/min 6	cm71000 strokes 7	rev/min 8	travel mm 9
	143,0-147,0 140,0-150,0)	1190-1200*	-	-	100	260,0-290, =15,8-16,0 mm RW		- .

Checking values in brackets

* 1 mm less control rod travel than col 2

7.84

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estcil-ISO 4113

WPP 001/4 MAN 11,9 a 4 1. Edition

PES 6 P 120 A 720-LS 470 RO 250/1100 PA 658-9 Komb.-Nr. 0 402 046 308 Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

MAN D 2866 KUH 265 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings
2,8-2,9
Port closing at prestroke (2,75-2,95) m

mm 2	cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (forque-control valve) mm 6
12.5+0.5	23.8-24.0	0,5(0,9)			
5,2-5,4	1,2-1,8	0,8(1,2)			
				ļ	ļ
	2 12.5+0.5	2 3 12.5+0.5 23.8-24.0	mm cm³/100 strokes 100 strokes 4 12.5+0.5 23.8-24.0 0,5(0,9)	mm cm ³ /100 strokes 100 strokes mm 2 12.5+0.5 23.8-24.0 0,5(0,9)	mm cm³/100 strokes 100 strokes mm cm³/100 strokes 2 3 12.5+0.5 23.8-24.0 0,5(0,9)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che		•		Control rod			Control rod	Control rod			
rev/min 1		rev/min 3	mm 4	mm S	rev/min 6	rev/min 7		rev/min 9	travel mm 10	rev/min 11	trave; mm 12
600 VH=	19,2-20,8 max.46°	600	20,0		1145-1160 1180-1210 0-1,0	250		250		100 935	12,5-12,6 11,3-11,4 12,4-12,6 11,7-12,0

Torque-control travel Torque control travel on flyweight assembly dimension a = 0,65 mm

Speed regulation: &145-1160 min

1 mm less control

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever pp. 40°C (104°F)	2 0	control rod stop	3	Fuel deliv	ery characteristics	3	Starting t	tuel delivery
rev/min 1	cm ³ /-1000 strokes 2	re 3	ov/min		rev/min 4	cm ³ /-1000 strokes 5		rev/min 6	Centrel rad travel cm ³ /1000 strokes:/ mm 7
LDA 750 LDA	1,0 bar 238,0-240,0 (235,0-243,0) 1,0 bar		•		LDA 650 LDA	1,0 bar 239,0-245,0 (236,0-248,0) 0 bar	•		225,0-245,0 221,0-249,0)
1100	213,0-219,0 (210,0-222,0)				500	139,0-141,0 (136,0-144,0)			

19 values in brackets

7.84

BOSCH

Geschäftsbereich KH. Kundendienat. Kfz. Ausrüstung.

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D. Adjustment Test for Manifold Pressure Compensator

MAN 11,9 a 4

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure - bar	Gauge pressure = bar	mm (1)
PES 6 P LS 470 +RQ PA 658-9	1,0	0 0,40 0,24	12,5-12,6 9,3-9,4 11,1-11,2 10,2-10,6

Notes

(1) when n

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

1

D24

2

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 11,9 a 3. Edition

En

PE 6 P 120 A 720 LS 470 RQ 250/1100 PA 684 Komb.-Nr. 0 402 046 288 Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersede 7 • 84

Company: D 2866 KF

engine 265 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,8 - 2,9 (2,75-2,95)

mm (from BOC)Zy1. 6: RW = 9.0-12.0 mm

		(2,70 2,50)		3		
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	12,5+0,1	23,8-24,0	0,5(0,9)			
250	5,2-5,4	1,2-1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of stider	Full-load Setting p	•	•	cifications (4)	Idle spe	_		cilisations (5)	Torque o	control 3
Control rod travel ev/min 2	rev/min	Centrel red travel mm 4	Central rad travel mm 5	rev/min	rev/min 7	Centrel red travel rmm 8	rev/min 9	Control rod travel mm	rev/min	travel
600 19,2-20,8 VH = max. 46	600	20,0		1145-1160 1180-1210 0-1,0		5,3	250	min.6,8 5,2-5,4 55 = 2,0	1100 935	12,5-12,6 11,3-11,4 12,4-12,6 11,7-12,0

Torque-control travel on flyweight assembly dimension a =

0,45 _{mm}

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	letivery on control lever np 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics 3b	Starting f	uel delivery
rev/min	cm³/~1000 strokes 2	rev/min 3	rev/min 4	cm ³ /~1000 strokes	rev/min 6	Central rad travel cm ³ /1000 strokes:/ mm
LDA 750 LDA 1100	1,0 bar 238,0-240,0 (235,0-243,0) 1,0 bar 214,0-218,0 (211,0-221,0)	-	LDA 650 LDA 500	1,0 bar 239,0-245,0 (236,0-248,0) 0 bar 139,0-141,0 (136,0-144,0)	100	225,0-245,0 (221,0-249,0)

Checking values in brackets

9.84

BOSCH

EA

D. Adjustment Test for Manifold Pressure Compensator

MAN 11,9 a

- 2 -

Test at n =

500 rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	diminution Control rod travel- difference mm (1)
PE6PLS470 + RQPA684	1,0	0 0,40 0,11	12,5 - 12,6 9,3 - 9,4 11,1 - 11,2 9,4 - 9,7

Notes

(1) when n :

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (2) and Governors

WPP 001/4 MAN 11,4 f 1. Edition

PES 6 P 100 A 720 LS 471 Komb.-Nr. 0 402 046 287

RO 250/1100 PA 685

supersedes_

company: MAN

D 2566 UH/200 147 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3,05-3,25)

mm (from BDG) RW = 9.0-12.0 mm

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	12,3+0,	9,4-9,6	0,35(0,6)			
250	4,9-5,1	1,2-1,8	0,35(0,59)		·
]	
						1

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che rev/min 1	Control rod	Full-load Setting po rev/min 3		_	rev/min	Idie spe Setting (rev/min 7	Control red travel		control rod travel mm	Torque (rev/min 11	Control rod 3
600	15,6-16,4	600	16,0		1145-1160 1215-1245 0-1,0	250	5,0	250	min.6,5 4,9-5,1 80=2,0	700 100	12,4-12,5 12,3-12,5
	ontrol travel ght assembly dimer	sion a =	0	mm	Spe	ed regula	tion: At	145-1	160 min ⁻¹		1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	felivery on control lever mp. 40°C (104°F)	2	Control rod stop 3a	Fuel deliv	ery characteristics	3 b	Starting (tuel delivery
rev/min 1	cm ³ /-1000 strokes 2		rev/min 3	rev/min 4	cm ³ /~1000 strokes		rev/min 6	cm ³ /1000 strokes:/ mm
750	94,0-96,0 (92,0-98,0)	₩	•	500 1100	85,0-88,0 (82,5-90,5) 100,0-104,0 (97,5-106,5)		100	115,0-135,0 (111,0-139,0)

Checking values in brackets

7.84

BOSCH

WPP 001/4 UNI 9.6 c 1. Edition

Er

PES 6 P 110 A 320 RS 472 Komb.-Nr. 0 402 046 292

RQ 275/1300 PA 689

supersedes

company: IVECO-Unic

engine 8220-12 148 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection, Rump Settings

Port closing at prestroke

(2.15-2.35)

mm (from BDC) RW=9.0-12.0 mm

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Conirol rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
	8,9-9,0	9,6-9,9	0,4(0,75			
275	4,2-4,4	1,5-2,0	0,45(0,7)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	\ \ \ /	Full-load Setting p	oint	Test spe	cifications (4)	idle spec	-		cifications (5)	Torque	control
rev/min	Control rod travel mm	rev/min 3	Control red travel rram 4	Centrel red travel mm 5	rev/min 6	rev/min 7	Central red travel mm 8	rev/min 9	Control rod travel mm	røv/min 11	travel
600	15,6-16,4	600		7.9 4.0 1500	1345-1360 1400-1430 0-1,0	275	4,3	275	min.5,8 4,2~4,4 75=2,0	700 865	8,9-9,0 9,2-9,3 9,1-9,3 8,9-9,2

Torque-control travel
on flyweight assembly dimension a =

0,2

Speed regulation: At 5-1360 min

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F)	2	Control rod stop	Fuel delin	very characteristics	Starting Idle spec	fuel delivery
rev/min 1	cm³/-1000 strokes 2		rev/min 3	rev/min	cm³/-1000 strokes 5	rev/min 8	cm ³ /1000 strokes:/ mm
1300	96,0-99,0 (93,5-101,5)		•	700	87,0-91,0 (84,0-94,0)	100	145,0-165,0 (141,0-169,0)

Checking values in brackets

7.84

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Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 MB 11.6 a 1 1. Edition

PE 6 P 100 A 720 RS 473 Komb.-Nr. 0 401 846 494

RQ 300/1100 PA 327-8

Daimler-Benz OM 355 engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke mm (from BDG) RW=9,0-12,0 mm

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100 300	13,1+0, 7,9-8,		0,35(0,6) 0,35(0,59		:	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

PRG che	g of slider tek Control rod travel mm	Full-load : Setting po rev/min 3	•	•	rev/min	idle spec Setting p rev/min 7	coint Central red travel		cifications 5 Control rod travel mm	Torque (, rev/min î 1	Control rod (3)
650	13,8-14,6	650	14,2		1145-1160 1190-1220 0-1.0	300	6,1	300	min.7,5 6,0-6,2 370=2,0	-	-
on flywei	ontrol travel ght assembly dimen		<u>-</u>	mm	Ť	ed regula		45-11	60 _. min ⁻¹		1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F)	Control rod stop 3	Fuel deli	very characteristics 3b	Starting I	fuel delivery
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min	cm ³ /-1000 strokes	rev/min 6	rad travel cm ³ /1000 strokes:/ mm
1100	125,0-127,0 (123,0-129,0)	-	600	117,0-121,0 (114,0-124,0)	100	150,0-170,0 (146,0-174,0)

Checking values in brackets

(1)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 RVI 8,8 L 1. Edition

En

PE 6 P 120 A 320 RS 474 RQV 275-1200 PA 425-3 Komb.-Nr. 0 401 846 499 Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

compan RVI MIDS 0620 30 engine: 168 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

	Control rod travel mm 2	(3,45-3,65) Fuel delivery cm ³ /100 strokes 3	mm (from BDO) Difference cm³/ 100 strokes 4	Control rod travel	Fuel delivery cm ² /100 strokes 3	Spring pre-tensioning (torque-control valve)/ mm 6
1200 275	12,6+0,1 6,0-6,2	14,8-15,0 0,8-1,4	0,5(0,9) 0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated: Degree of deflection of control tever	rev/min Control rod travel mm	(rave)	Intermediate Degree of deflection of control lever	rav/min	Control rod travel mm 4	Lower rated Degree of deflection of control lever 7	speed rev/min 8	Control rod travel mm 3	Sliding a rev/min 10	mm
max.	1230 11.6 4.0 1500	15,2-17,8 1265-1279 1380-1410 0-1,0	5	-	-	ca. 12 275-360	275	min.9,1 6,0-6,2	400	1,2-1,4 2,9-3,4 5,8-6,0
	7300	0-7,0				275-300 ③			200	7,9

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

felivery d stop mp. 40°C (104°F) 2	Rotational-speed 2b limitation intermediate speed	Fuel deli- high idle s	rery characteristics (Se	idle	• . •	Torque- travel	Control roc
cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
2	3	4	5	6	7	8	9
	1265-1275*	750	137,0-143,0 (134,0-146,0)	100	105,0-125,0 (101,0-129,0)	-	•
0,7 bar		750	0,7 bar		٥		
ŀ	d stop np. 40°C (104°F) (2) cm³/1000 strokes 2 148.0-150.0 (145.0-153.0)	cm ³ /1000 strokes limitation intermediate speed rev/min 3	cm ³ /1000 strokes rev/min 3 1265-1275* 750 145,0-153,0	cm ³ /1000 strokes rev/min rev/min cm ³ /1000 strokes 148.0-150.0 1265-1275* 750 137.0-143.0 (134.0-146.0)	cm ³ /1000 strokes rev/min rev/min cm ³ /1000 strokes d stop np. 40°C (104°F) 2	cm ³ /1000 strokes rev/min rev/min cm ³ /1000 strokes	
Checking values in brackets

* 1 mm less control rod travel then col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure ~ in bar gauge pressure

RVI 8,8 1

300			
Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 6 P RS 474 + RQVPA 425-3	0,70		12,6 - 12,7
		0 0,20	11,3 - 11,4 12,3 - 12,4
		0,16	11,6 - 11,8
		•	

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MAN 11,4 g 1. Edition

Ēη

PES 6 P 110 A 720 LS 477 RQ 250/1100 PA 685 Komb.-Nr. 0 402 046 304

supersedes

MAN

D 2566 UH/200

ine: 177 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3.05-3.25)

mm (from BDC)Zy1. 6

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
800 250	11,7+0,1 6,0-6,2	12,3-12,6 1,5-2,0	0,4 (0,7! 0,45(0,7!			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	(' /	Full-load Setting p			cifications (4)	idle spec	ed reguli point		ecifications (5)	Torque	control
rev/min	Control rod travel mm	fev/min 3	Central rad travel rnm 4	Control red travel rnm 5	rev/min	rev/min 7	Control red travel mm	rev/min 9	Control rod travel mm	rev/min 11	travel
600	15,6-16,4	600	16,0		1145-1160 1210-1240 0-1,0		6,1	250	min.7,6 6,0-6,2 410=2,0	1100 500	11,7-11,8 11,7-11,9

Torque-control travel on flyweight assembly dimension a =

_

Speed regulation: A145-1160 min-1

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F)	Control rod stop (3a)	Fuel deliv	ery characteristics 3b	Starting f	tuel delivery 6
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/ mm 7
800	123,0-126,0 (120,5-128,5)	-	1100 500	127,0-133,0 (124,0-136,0) 113,0-119,0 (110,0-122,0)	100 250	110,0-130,0 (106,0-134,0) 15,0-20,0 (12,5-22,5)

Checking values in brackets

7.84

BOSCH

Testoil-ISO 411

Test Specifications Fuel Injection Pumps (2) PP 001/4 MB 10,0 b and Governors

1. Edition

PE 5 P 120 A 720 RS 480 RQ 250/1100 PA 269 R 1-2-4-5-3 je 72 ° + 0,5 ° (+ 0,75 °) Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

company Mercedes-Benz Bras. Komb.-Nr. 9 400 087 311

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestrake

1,9-2,0

mm (from 806) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,2+0,1	20,1-20,3	0,5 (0,9			
250	5,9-6,1	1,3-1,9	0,8 (1,2			
			·			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking PRG che		Full-load : Setting po			cifications (4)	Idle spec	-		cifications (5)	Torque	control 3
rev/min 1	Control rod travel mm 2	rev/min 3	Control red travel rmm 4	Control red travel rnm 5	rev/min 6	tev/min 7	Control red travel mm 8	rev/min 9	Control rod travel mm	rev/min 11	Control rod travel mm
600	15,6-16,4	600	16.0		1125-1145 1190-1220 0 - 1,0		6,0	100 250 385	min.7,0 5,9-6,1 425=2,0	•	•
Orone-co	ontroi travel			_			11	25-114	5 min		1 mm less cents

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on ontrol lever p 40°C (104°F)	2	Control rod stop (3a)	Fuel deliv	ery characteristics 36	Starting to	tuel delivery
rev/min 1	cm ³ /-1000 strokes 2		rev/min 3	rev/min	cm ³ /-1000 strokes	rev/min 6	cm ³ /1000 strokes/ mm
1100	201,0-203,0 (198,0-206,0)		450	500	202,0-208,0 (199,0-211,0)	100	335,0-355,0 =17,6-18,6 mm RW

cking values in brackets

7.84

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estoil-ISO 4113

9. Edition

PE 6 P 100 A 320 LS 805

300/1250 PA 197 P (1) ROV 300-1250 PA 227 R (2) supersedes 7.83 Daimler Benz OM 401

6 - 3 - 5 - 2 - 4 - 1 $0 - 45 - 120 - 165 - 240 - 285 \pm 0.5$ (± 0.75 °)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)Zyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	11,0+0,	1 10,6 - 10,8	0,3(0,6)			
300	7,9-8,1	1,9 - 2,5	0,3(0,7)			
						<u> </u>

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

RQ.. 187 R (1)

PRG che	Control rod	Full-load speed re Setting point Certral Ired travel		Test specifications Centrel		Control		Test specifications Control rod		Torque control Control rod	
rev/min 1	travel mm 2	rev/min 3	mm 4	red travel mm 5	rev/min 6	rev/min 7	nd travel mm 8	rev/min 9	travel mm 10	rev/min 11	travel mm 12
650	13,8-14,6	650	14,2	10,0	1295-1310	300	8,0	100 300	min. 9,5 7,9-8,1	1250	11,1-11,2
1450	0 - 1			4,0	1330-1360				450 =2,0 0 - 1	600	11,1-11,3
					·						

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on ontrol lever op. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics 3b	Starting f	d Control
rev/min	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /~1000 strokes 5	rev/min 6	red travel cm ³ /1000 strokes:/ mm 7
(1) 1250	107,0 - 109,0 (105,0 - 111,0)	600	600	85,0 - 90,0 (83,0 - 92,0)	100 1355	110 - 130 Streug. max.4 (6)

Checking values in brackets

B. Governor Settings

Upper rated s	peed			Intermediate	rated spe	ed	Lower rated	speed	•	Sliding s	leeve travel
deflection of control	rev/min Control rod travel mm	Control rod travel mm rev/min 3	0	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min	Control rod travel mm 3	rev/min	mm 11
max.	1290	15,2-17	7,8	-	-	-	ca. 12		min.9,5 7,9-8,1		0,2-0,6
ca. 66	• - 1	1290-1 1330-1							,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		5,1-5,
	1450	0 -	1,0				325-450				
							3a				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fixed Governor

Full-load d Control-ro Test oil ter		Rotational-speed (2b) timitation intermediate speed	Fuel deln characte high idle :	ristics	Starting Idle switching	fuel delivery 6	Torque- travel	Control cod
rev/min	cm ³ /1000 strokes	(4a) rev/min 3	rev/min	cm ³ /1000 strokes 5	rev!min 6	cm //1000 strokes 1	rev/min 8	mm 9
(2) 1250	106,0-108,0 (104,0-110,0)	1290-1300*	600	83,0 - 88,0 (80,0 - 92,0)	1	110 - 130		
					100	l -250 (80-270)		

Checking values in brackets

Testoil-ISO 4113

* 1 mm less control rod travel than co: 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n -

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	diminution Control rod travel- difference mm
			·

En'

Test Specifications Fuel Injection Fumps (A) and Governors

40

WPP 001/4 IHC 13,4 e 1
1. Edition

En

PES 6 P 110 A 420 LS 3037

RSV 350-1050 P2/423 UR

supersedes IHC

Values only apply to test nozzle-and-holder assembly 1 688 901 016 and fuel-injection test tubing 9 681 271 027

engine UT1-817 C Komb.-Nr. U 402 076 708

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Inlet pressure 2,8 bar

Port closing at prestroke

2,0-2,1 (1,95-2,15)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm*/100 strokes 3	Difference cm ¹ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm/100 strokes 3	Spring pre-tensioning (forque-control valve) mm 6
1050	11,5+0,1	20,5-20,7	0,4			
350	4,6-4,7	2,0-2,5				
	<u> </u>					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Upper rated speed rev/min			Intermediate rated speed			Lower rated speed			3 Torque control	
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min 3	4	5	6	Control- lever deflection in degrees 7	rev/min 8	Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3-1,0	•	-	-	ca.23	100	** 20,0-21,0		11,5-11,6 12,6-12,7 12,9-13,0
ca.45	10,5 4,0 1300	1090-1100 1145-1175 0,3-1,7					200 350 360-42	11,0-21,0 4,6 0 = 2,0	730	12,5-10,0

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Full-load stop		6 Rotational- speed limitat	11361	uel delivery naracteristics	Starting fuel delivery 5		48 Idle stop	
Test oil t rev/min 1	emp 40°C (104°F) cm /1000 strokes 2	Note changed to) rev/min 3	rev/min	cm ¹ /1000 strokes	rev/min	cm ¹ /1000 strokes	rev/min	Control rod travel mm
LDA 1050	0,8 bar 205,0-207,0 (203,0-209,0)	1090-1100*	LDA 750 LDA 800	0,8 bar 225,0-231,0 (223,0-233,0) 0 bar 145,0-153,0 (142,0-156,0)	100 350	185,0-205, 20,0-25,0		-

Checking values in brackets

* 1 mm less control rod travel than col. 2

With control lever in end position: increase speed until 4 mm control-rod travel is reached. Then adjust idle spring so that it makes contact and screw out by one turn.

BOSCH

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung.
1980 by Robert Bosch GmbH. Postfach 50. D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

D. Adjustment Test for Manifold Pressure Compensator

IHC 13,4 e 1

- 2 -

Testatn =

800

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure · bar	Gauge pressure = bar	mm (1)
PES6PLS3037 + RSVP2/423DR	0,18-0,24	0,56-0,58	Control-rod travel aspiration + 0,5 mm Full-load control-rod travel - 0,5 mm

Notes

(1) when n

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

WPP 001/4 MWM 39,8 c . 3. Edition

En

(1) PE 6 P 130 A 300 LS 3051

(2) PE 6 P 130 A 320 LS 3052 (3) PE 6 P 130 A 300 LS 3052

RSUV 300-750 P9A 332/1 R

supersedes 1.83 MWM-Südbremse company TBD 602-V 12 K

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test Komb.-Nr. 0 401 816 703 (1) 0 401 876 711 (2)

tubing 1,680,750,067 Fuel Injection Pump Test Benches and Testers

0 401 816 705 (3)

A. Fuel Injection Pump Settings Cam sequence and angular cam spacing, Instructions 2

Port closing at prestroke

Testoil-ISO 4113

(2,75-2,95)

mm (from BD &W = 19,5-22,5 mm

Rotational speed rev/min 1	Control rod travel	Fuel delivery cm /100 strokes 3	Difference cm ¹ / 100 strokes	Control rod travel mm 2	Fuel delivery cm*/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,0+0,1	(31,4-32,4)	(0,5)			
300	5,4-5,6	4,6-5,4	0,8 (1,2)			
	'					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

(1) Uppe	r rated speed		Intermed	diate rated	speed	(4)	Lower	rated speed	(3) to	rque control
Degree of deflection	Control rod travel	travel				Control- lever		Cofitrol rod travel		Control rod travel
of control lever 1	mm 2	mm rev/min	4	5	6	deflection in degrees 7	rev/min 8	mm 9	rev/min 10	mm 11
loose	800	0,3-1,0	-	-	•	ca. 29	300	4,9	700 325	12,0-12,1 13,2-13,8
	X =	5,25				İ	300	5,3-5,5	450	12,0-12,1
ca. 70	11,0 4,0 980	790-800 815-845 0,3-1,7					325-385	= 2,0		
	500	0,001,7								

The numbers denote the sequence of the tests

without (1 u. 3) and

C. Settings for Fuel Injection Pump With Fitted Governor

9	ill-load stop	6 Rotational- speed limitat	39 E	uel delivery	Starti ng	Ne delivery	49 id	e stop
	emp 40°C (104°F) cm/1000 strokes 2	Note changed to) rev/min 3	rev/min	cm ¹ /1000 strokes	rav/min	982/2999/2929/29 7 mm RW	rev/min	Control root travel mm
٠,		790-800*			100	19,5-21,0	-	-
he fu nspec	ll-load delive tion sheet. Pu	ry is adjuste mps (1) and (d on 2) or	the engine in a (1) and (3) op	ccordar perate	ce with th n tandem.	e eng	ine

Checking values in brackets

* 1 mm less control rod travel than col. 2

5.84

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung. c. 1980 by Robert Bosch GmbH. Postfach 50. D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH.

Cam sequence and angular cam spacing.

1- 5- 3 - 4 - 2 - 6 (1)
0-15-120-135-240-255°
$$\stackrel{+}{=}$$
 0,5° ($\stackrel{+}{=}$ 0,75°)

1- 6- 2 - 4 - 3 - 5 (2 u. 3)
0-15-120-135-240-255°
$$\stackrel{+}{=}$$
 0,5° ($\stackrel{+}{=}$ 0,75°)

0

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 10,0 q 5

1. Edition

_En

PE 6 P 110 A 320 RS 3108 RQV 325-1100 PA 232 Komb.-Nr. 0 401 846 753

supersedes: company. Volvo-BM TD 100 G

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pret	uoke (2.95-3.15)	mm (from BDC)			
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
700	11,5+0,1	14,8-15,0	0,4(0,8)			
325	3,9-4,1	1,6-2,0	0,3(0,6)			
			}	1		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	i I	1		Intermediate	rated sp	4	Lower rate	speed	4		Sliding s	leeve travel
Degree of deflection of control	rev/min Control	trave!	9	Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	'	1	. ①
lever	rod trave	rev/min (29	lever	rev/min	mm (4	lever	rev/min	mm (rev/min	
,	2	3		4	5	6	17	8	9	_	10	11
max.	1175	15,2-17	8	-	-	-	ca. 11	100 325	min.6, 3.9-4.		275 550	,2-1,4 3,3-3,8
ca. 44	10,5 4,0	1140-115 1220-125							400=2,0		825	,3-5,6
	1350	0-1,0								ľ	100	8,0
		-					(3)			l		

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-ros Test oil ten		limitation intermediate speed	high idle t	rery characteristics (5a)	Starting Idle awitchis	• . •	Torque- travel	Control rod
rev/min	cm ³ /1000 strokes .	rev/min 4e	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	8	7	8	9
LDA 700	0,75 bar 148,0-150,0 (145,0-153,0		LDA 700	0 bar 114,0-118,0 (111,0-121,0)	100	170,0-200,0 =20,0-21,0 mm RW	•	ı

Chucking values in brackets

* 1 mm less control rod travel then col. 2

D. Adjustment Test for Manifold Pressure Compensator

VOL 10,0 q 5

- 2 -

Te	est	at	n	-

500

rev/min decreasing pressure - in bar gauge pressure

Setting	Measurement	diminution Control rod travel- difference
Gauge pressure bar	Gauge pressure : bar	mm (1)
0,75	0 0,46 0,34	11,6-11,7 9,7-9,8 11,1-11,2 10,3-10,5
	Gauge pressure bar	Gauge pressure bar Gauge pressure bar 0,75

Notes

(1) when n

rev/min and gauge pressure

bar (= maximum full-load control rod travel)

WPP 001/4 MB 18,3 d

4 . Edition

estoil-ISO 4113

PE 10 P 110 A 320 LS 3818

RQV 300-1150 PA 486-2

1 - 8 - 7 - 6 - 3 - 5 - 2 - 10 - 9 - 40 - 27 - 72 - 99 - 144 - 171 - 216 - 243 - 288 - 315° - 0,5° (-0,75°) supersod@.84 companyDaimler-Benz OM 423 engine 261 kW (355 PS)

Komb.-Nr. 0 401 849 706

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke	3.95-4.15)	mm (from BDC)	Zy1. 10		
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	100 strokes	mm 2	cm ³ /100 strokes	mm 6
1150	12,1+0,1	12,4- 12,6	0,4(0,8)	,		
300	8,5-8,7	1,4 - 2,2	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed			Intermediate	rated sp	eed Dee		Lower rated	speed		Cliding	donus denust
Degree of deflection of control lever	rev/min Control rod travel mm	Control rod travel mm rev/min	(a)	Degree of deflection of control lever	rev/min		•	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	mm
	-	3	_	•	9	0	_	/	В	9	10	11
max.	1200	15,2-17	,8	-	-	-		ca. 19	100	min.10,2	250	1,0-1,2
ca. 65	11,1	1190-12	00						300	8,5-8,7		3,4-3,7
	4,0 1400	1240-12 0 - 1						30-470			1150	4,9-5,3 7,6
								3				

Torque control travel a = 0,5 mr

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-rot Test oil ten		Rotational-speed 2b limitation intermediate speed	Fuel deli- high idle :	very characteristics (5e speed (50)	Starting Idle switching		Torque- travel	Control roo
rev/min 1	cm ³ /1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travet mm
1150	124, 0- 126, 0 (121, 5- 128, 5)	1190-1200 *	600 900	110,0-114,0 (107,0-117,0) 118,0-125,0		140, 0-160, 0 (136,0-164, 0	600	12,1+0 12,5+0 12,4+0
				(115, 0-126,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.84

WPP 001/4 MAC 10.9 c 1. Edition

US-PES 6 P 120 A 720/3 RS 6008 US-ROV 300/500-1050 PA 591-3 K

Komb.-Nr. 9 400 231 181

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test

tubing 1 680 750 067

supersedes companyMack engine EE6-335

250 kW

Note VDT-I-MAC 002!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke mm (from BDC) PLE-Maß=0,740"-0,820"

Rotational speed rev/min	travel	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	14,0+0,1	25,9-26,1	0,5(0,9)			
300	5,8-6,0	13,0-13,1	0,25(0,4	5)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed		Intermediate	e rated sp	eed	Lower rated	speed		Cudion	lacus frauel
Degree of deflection of control layer	rev/min Control rod travel mm 2	Control rod travel mm rev/min 29	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min	Control rod travel mm 3	rev/min	mm
max.	1120	15,2-17,8	-	-	-	ca.20	250	9,8-11,3		
ca.63		1090-1100 1195-1225 0-1.0					300 400 710-7	7,9-8,1 3,8-5,2 70=2,0		
						③				-

Tavajue control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load (Control-ro Test oil te		Rotational-speed (2b) limitation intermediate speed	Fuel deli- high idle :	very characteristics 5e	Starting Idle switchli	• . •	Torque- travel	control 5
rev/min 1	cm ² ::000 strokes	rev/min 49 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min	travel mm
1050	259,0-261,0 (256,0-264,0)	1090-1100*	800 600	219,5-225,5 (216,5-228,5) 212,5-218,5 (209,5-221,5)		120,0-180,0	1050 1000 900 700 500	14,0 13,8+0 13,3+0 12,7+0 12,5+0

Checking values in brackets

1 mm less control rod travel than col. 2

7.84

BOSCH

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Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 SCA 11.0 z

1. Edition

PE 6 P 120 A 720 RS 7013 Komb.-Nr. 9 400 087 303

ROV 200-1000 PA 715

supersedes

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

companSaab-Scania Brasilien engine: DSE 11

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 5,0-5,1

Port closing at prestroke mm (from BDC) RW = 9.0-12.0 mm4 95-5 15) Control rod travel Rotational speed Control rod **Fuel delivery** Difference Fuel delivery Spring pre-tensioning (torque-control valve) cm³/ 100 strokes rev/min cm³/100 strokes cm³/100 strokes mm mm mm 3.3[±]0.1 700 15,0+0,1 26,8-27.0 0.6(0.9)(3.0-3.5)225 5,4-5,6 4,3-4,7 D.3 (0,6)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peedi rev/min	Control rod		Intermediate	rated sp		_	Lower rated	speed	locations	Sliding s	leeve travel
deflection of control	Control rod travel	mm .	\leq 1	Degree of deflection of control lever	rev/min	Control ro travel		Degree of deflection of control lever	rev/min	Control rod travel	rev/min	(1) mm
1	2	3		4	5	6	0	7	8	9	10	11
max.	1000	15,2-17,8	3	-	•	-		ca. 12	225	min.6,9 5,4-5,6		
ca. 62	14,0 4,0	1040-105 1170-120							370-	430=2,0		
	1300	0-1,0	٦					225 - 365				
								3				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter			Fuel delicities	very cheracteristics (5a)	Starting Idle switchis	. •	Torque- travei	control 5
rev/min	cm ³ /1000 strokes	rev/min 4	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	88	9
700	268,0-270,0 (265,0-273,0		1000	260,0-268,0 (257,0-271,0)		300,0-350,0 20,0-21,0 mm RW	-	•

Chucking values in brackets

* 1 mm less control rod travel than cot. 2

8.84

BOSCH

WPP 001/4 SCA 14,2 f

1. Edition

En

PE 8 P 120 A 920/4 LS 7014 RQV 250-1000 PA 716 Komb.-Nr. 9 400 087 304 1-2-7-3-4-5-6-8 je $45^{\circ} \pm 0.50^{\circ} (\pm 0.75^{\circ})$ Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067 All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes compaSpab-Scania Brasilien engineDSE 14

A. Fuel Injection Pump Settings

Port closing at pret	itroke	(4,95-5,15)	mm (from BDC)	RW = 9,0	0-12,0 mm	
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	15,0+0,1	26,8-27,0	0,6(0,9)			3,3 [±] 0,1
225	5,4-5,6	4,3-4,7	0,3(0,6)			(3,0-3,5)
				<u> </u>		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	4			Intermediate	rated sp	i .	Lower rated	speed			Sliding s	leeve trave	el
Degree of deflection of control lever	rod travel	WEAR.	\subseteq	Degree of deflection of control lever	rev/min 5	Control rod travel mm	Degree of deflection of control fever 7	rev/min 8	Control re travel mm 9	3	rev/min	mm 11)
max.	1000	15,2-17	,8	-	•	-	ca.12		min.6,				
ca.62	14,0 4,0 1300	1040-10 1170-12 0 - 1,0	00				225-365	370-4	5,4-5, 30= 2,				
							39						

Torque control travel a = ___ mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten		limitation intermediate speed	Fuel deli- high idle s	rery characteristics (5a)	Starting idle switchir	• . •	Torque- travel	Control rod
rev/min	cm ³ /1000 strokes .	rev/min 40	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	mm :
1	2	3	4	5	6	7	8	9
700	268,0-270,0 (265,0-273,0		1000	260,0-268,0 (257,0-271,0)	100	300-350 = 20,0-21,0 mm RW	•	•

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.84

WPP 001/4 VWW 1,6 W 6

3. Edition

Testoil-iSO 4113

VE 4/9 F 2250 R 134-4

U 460 494 137

Overflow temperature 45° C

supersed 12.83 company VWW engine: 086 T

All test specifications are valid only for Bosch Fuel-Injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/...

Pre-stroke setting mm

1. Settings	Rot speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference In delivery cm ³
1.1 Timing device travel	1500	3,2 - 3,7	mm	0,75	
1 2 Supply-pump pressure	1500	4,6 - 5,2	bar (kgf/cm²)	0,75	
1.3 Full-load delivery with charge-air pressure	1500	42,5 - 43,5	cm³/1000 strokes	0,75	2,5 (3,0
Full-load delivery without charge-air pressure	600	22,5 - 23,5	cm³/1000 strokes	0	
1.4 Idle regulation	475	6,0 - 10,0	cm?/1000 strokes	0	2,0 (3,0
1 5 Full-speed regulation	2525	9,0 - 15,0	cm ³ /1000 strokes	0,75	
1 6 Start	100	min. 35	cm ² /1000 strokes	0	•
1 7 Load-dependent port-closing					

2. Test Spec	cifications	checking values in brackets ()	
21 Timing device LDA=0,75 bar	n = rev/min mm	1000 1,3-2,1 (1,0-2,4)	1500 (2,8-4,2)	2250 6,0-6,8 (5,7-7,1)
2.2 Supply pump LDA=0,75 bar	n = rev/min ber (kgf/cm²)	600 2,5-3,1		2250 6,5-7,1
Overflow delivery	n = tev/min cm ³ /10 s	600 (0 bar) 55-138 (40-153)		2250 (0,75 bar 55-138 (40-153)
2 3 Fuel deliveries				3 Dimensions

2 3 Fuel deliveries					
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes		Charge-air press bar (kgf/cm²)	
End stop	2750 2525 2250 1500 1000 * 600	max. 3,0 37,5-39,5 32,5-33,5	(8,0-16,0) (36,2-40,8) (40,7-45,3) (30,7-35,3) (20,0-26,0)	0,75 0,75 0,75 0,75 0,75 0,30	
switch-off			and gath that the state of the		
elektr.	400	0		}	ı
Idle stop				†	ł
	475 1200 1125 **	max. 4,0 22,0-24,0	(4,0-12,0)		
End stop	400 500	min. 21 max. 29			
2 4 Solenoid	max cut-in voltage)		<u> </u>	

	3. Dimer	ISIONS
638	Designation	for assembly and adjustment mm
	к	3,2 - 3,4
	KF	5,7 - 6,0
	MS	1,2 - 1,4
-	svs	3,2
	A .	
	8	
	Observations	
	*	
-		ote instruc- sheet 2.

BOSCH

- * Manifold-pressure compensator stroke = 4,0
- ** Setting point for EGR

Pull control lever toward full load untill gauge fits over driver and housing cover web. Measure delivery.

6

estoli-180

Test Specifications Distributor-type Fuel-injection Pumps

40

WPP 001/4 FIA 1,9 e

2. Edition

VE 4/9 F 2300 R 141

Overflow temperature 45° C

supersed 2.83 company: Fiat

0 460 494 132

DHK: 1 688 901 022/130 bar

Test pressure line 6x2x450 mm / 1 680 750 073

company:Fiat engine X 8/43

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

. .

see VDT-W-460/

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ²
t 1 Timing device travel	1500	4,3-4,7	mm		
1 2 Supply-pump pressure	1500	5,6-6,2	bar (kgl/cm²)		
§ 3 Full-load delivery with charge-air pressure			cm ² /1000 strokes		
Full-load delivery without charge air pressure	1500	31,0-32,0	cm ³ /1000 strokes	ĺ	2,5(3,0)
1.4 Idle regulation	350	9,0-13,0	cm³/i000 strokes		2,5(3,0)
1 5 Full-speed regulation	2500	11,0-17,0	cm ³ /1000 strokes	İ	
t 6 Start	100	min. 55,0	cm ³ /1000 strokes		
1.7 Load-dependent port-closing	1500				

2. lest Spe	cifications	checking values in brackets ()	
2 1 Timing device	n = rev/min	800	1500	2300
	mm	1,7-2,5(1,4-2,8)	(3,8-5,2)	7,1-7,9(6,8-8,2)
2 2 Supply pump	n = rev/min	400		2300
	bar (kgf/cm²)	2,8-3,4		7,4-8,0
Overflow delivery	n = rev/min	400		2300
	cm ³ /10 a	55-138(40-153)		55-138(40-153)
2 3 Fuel deliveries				3. Dimensions

Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm²)
End stop	2600	6,2-6,8 (6,1-6,9)	
	2500	(10.0-18.0)	
	2400	21,0-27,0(20,0-28,0)	
	2250	32,7-34,7(31,4-36,0)	
	1500	(29,2-33,8)	i
	1000	30,7-33,3(29,0-35,0)	
	600	32,0-35,0(30,5-36,5)	
switch-off			
idie slop	350	(7,0-15,0)	
	400	max. 4,0	
	540	0	
End	300	min. 45,0	Ì
stop	400	max. 46,0	
2 4 Solenoid	max. cut-in volte	nge xxx min. 10 V	

3. Dimer	for assembly and adjustment mm
к	3,1-3,4
KF	5.7-5.9
MS	1,7-1,9
svs	2,8
XK	20,2-22,2
XL	10,3-13,7
Observations	

BOSCH

Test Specifications Distributor-type Fuel-injection Pumps

44

WPP 001/4 PEU 1,9 b

3. Edition

₹ E 4/9 F 2300 R 162

Overflow temperature 45° C

supersedes 07.84 company: Peugeot xUD 9

0 460 494 153

DHK: 1 688 901 022/130 bar

Test pressure line 6x2x450 mm / 1 680 750 073

Test Instructions and Test Equipment

Pre-stroke setting

mm

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

see VDT-W-460/...

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1 1 Timing device travel	2000	7,8-8,2	mm		
1 2 Supply-pump pressure	1250	3,9-4,5	bar (kgf/cm²)		
1 3 Full load delivery with	-	-	cm³/1000 strokes		
charge-air pressure Full-load delivery without	1250	29,5-30,5	cm³/1000 strokes		2,5(3,0)
charge air pressure	A 550	2,5-3,5	cm³/1000 strokes		B 2,5(3,0)
1.5 Full-speed regulation	2400	20,0-26,0	cm ³ /1000 strokes		
1 6 Start	100	min. 44,0	cm ³ /1000 strokes		
1.7 Load-dependent port-closing	1250				

		checking values in brackets ()	4050	0000	
2 1 Timing device	u = tev/min	0,5-1,5(0,3-1,7) 3,4-	1250 -4,2(3,1-4,5)	2000 (7,3-8,7)	
2.2 Supply pump	n = rev/min bar (kgf/cm²)	700 2,3-2,9		2000 5,9-6,5	
Overflow delivery	n = rev/min cm ³ /10 s	600 55-138(40-153)		2300 55-138(40-	153)
2 3 Fuel deliveries				3. Dimen	sions for assembly
Speed control lever	Rot. speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm²)	Designation	and adjustment mm
End stop	2650 2500 2400 2250 2000 1250 700	max. 7,0 11,5-17,5 (10,5-18,5) (19,0-27,0) 30,0-32,0 (28,7-33,2) 30,6-32,6 (29,3-33,8) (27,7-32,2) 29,5-32,5 (28,0-34,0)		K KF MS SVS	3,2-3,4 5,7-6,0 1,3-1,5 3,0
switch-off	2300	0		A B	
die stop	A 550 B 375 C 470	2,5-3,5 8,5-10,5 (5,5-13,5) 8,0-10,5 (5,0-13,0)		Observations	1
End stop	200 300	min. 40,0 max. 35,0		*Residual ting Idle as per VDT	delivery setsetting (LFC -I-460135
2 4 Solenoid	max cut in voltag	XXX mru* to A			

Test Specifications Distributor-type Fuel-injection

WPP 001/4 PEU 1.7 a

3. Edition

Testoil-ISO 41

VE 4/8 F 2300 R 171

Overflow temperature 45° C

supersede 07.84 company Peugeot engine: XUD 7

0 460 484 010

Test pressure line

DHK: 1 688 901 022/130 bar DHK: 1 688 901 022/130 bar 6x2x450 mm / 1 680 750 073

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

see VDT-W-460/...

1. Settings	Rot speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1 1 Timing device travel	1250	3,8- 4,2	mm		
1 2 Supply-pump pressure	1250	4,3- 4,9	ber (kgf/cm²)		
1.3 Full-load delivery with charge-air pressure	-	-	cm³/1000 strokes		
Full-load delivery without charge-air pressure	1250	29,5-30,5	cm ³ /1000 strok as		2,5(3,0
1 4 Idle regulation *	A 550	3,5- 4,5	cm³/1000 strokes		B 2,0(3,0
1.5 Full-speed regulation	2400	19,0-25,0	cm³/1000 strokes		
1 6 Start	100	min. 42,0	cm³/1000 strokes		
1 7 Load-dependent port-closing	1250				

2. Test Spe	cifications	checking values in brackets ()	
2.1 Timing device	n = rev/min mm	700 0,8-1,6(0,5-1,9)	1250 (3,3 - 4,7)	2000 8,0-8,8(7,7-9,1)
2 2 Supply pump	n = rev/min ber (kgf/cm²)	700 2,8-3,4		2000 6,4-7,0
Overflow delivery	n = rev/min cm³/10 s			2300 55-138(40-153)
O Fresh deliveries				

2.3 Fuel deliveries		•	
Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press
End stop			
	2650	max. 7,0	
	2500	11,5-17,5 (10,5-18,5)	
	2400	(18,0-26,0)	i
	2250	28,0-30,0 (26,7-31,3)	
	2000	29,0-31,0 (27,7-32,3)	
	1250	(27,7-32,3)	1
	700	29,5-32,5 (28,0-34,0)	
	1		
switch-off	2300	0	
die stop	A 550	25 45	
		3,5 - 4.5	
	B 350 C 470	8,0 -12,0 (6,0-14,0)	
	C 470	8,0 -12,0 (6,0-14,0)	
End	200	m: 44 0	
stop	200	min. 44,0	
· · · · · · · · · · · · · · · · · · ·	300	max. 34,0	
2.4 Solenoid	max. cut-in volta	ge AO N	
	test voltage	xx min 10 V xrated voltage 12V	

	0(40-155)
3. Dimens	Sions for assembly and adjustment mm
K KF MS SVS	3,2-3,4 5,2-5,5 1,3-1,5 max. 3,0
A 8	·
*Residual of ting Idle s as per VDT-	delivery set- setting (LFG) ·I-460135

Geschäftsbereich KH. Kundendienst, Kfz-Ausrüstung < 1980 by Ro⊳art Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federzi Republic of Germany tmprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

150

WPP 001/4 CUM 5,9 q 2. Edition

Overflow temperature 45° C

supersēde 8' 84

company:

Cummins 6 BT-590

0 460 426 038

VE 6/12F 1400 R173

DHK: 1688 901 016/207+3 bar

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment

Pre-stroke setting

+ 0.02 (0.04)

see VDT-W-460/ .

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm ³
1.1 Timing device travel	1100	2,1-2,5	mm	0,75	
1 2 Supply-pump pressure	1100	4,3-4,9	bar (kgf/cm²)	0,75	
1 3 Full-load delivery with	1100	86,0-87,0	cm³/1000 strokes	0,75	4,0 (4,5
charge-air pressure Full-load delivery without	500	73,5-74,5	cm³/1000 strokes	0	
charge-air pressure 1 4 Idle regulation	375	20,0-26,0	cm³/1000 strokes	0	3,5 (4,5
1 5 Full-speed regulation	1600	31,0-39,0	cm ³ /1000 strokes	0,75	
1 6 Start	100	min. 97,0	cm³/1000 strokes	0	
1 7 Load-dependent port-closing	-				

2. Test Spec	ifications	checking values in brackets (•	
2 1 Timing device LDA = 0,75 ba	n = rev/min	900 0,4-1,2 (0,1-1,5)	1100 (1,6-3,0)	1400 2,9-3,7 (2,6-4,0)
22 Supply pump LDA = 0,75 ba	n = rev/min bar (kgf/cm²)	500 2,0-2,6	5	1400 ,6-6,2
Overflow delivery	n = rev/min cm³/10 s	500 55 - 138 (40 - 153)	55-	1400 -138 (40-153)
B.O.F. at deliveries		1		3 Dimensions

23 Fuel deliveries			
Speed control lever	Rot speed rev/min	Fuel delivery cm ³ /1000 strokes	Charge-air press. bar (kgf/cm²)
End stop	1750 1600 1400 1250 1100 * 750 500	max. 1,5 (30,0-40,0 79,5-82,5 (78,0-84,0 82,5-85,5 (81,0-87,0 (83,5-89,5 80,0-81,0 (77,5-83,5 (70,3-77,7	0,75 0,75 0,75 0,75 0,75
switch-off			
End stop	450 375 300 130 200	max. 1,5 (18,0-28,0 35,0-43,0 (34,0-44,0 min. 97,0 max. 85,0	
2 4 Solenoid	max. cut-in volta	XX IIII III IO VOLC	·

3. Dimer	18i018 for assembly and adjustment
Designation	mm
K	-
KF	5,1-5,9
MS	1,4-1,6
svs	2,4
•	
8	
Observations	
	ck electric device at 1.
Manifold	l-pressure

BOSCH

compensator stroke

= 4,5 mm

WPP 001/4 SOA 3.7 a 1. Edition

PES 4 A 80 D 410/3 RS 1183

RSV 325-1150 A 8 B 493-1 L

_{company}Sonacome

Komb.-Nr. 0 400 464 095

F 4 L 912

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 1,9-2,0 Port closing at prestroke (1,85-2,05) mm

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm 2	cm ¹ /100 strokes	cm ¹ / 100 strokes	mm	cm //100/strokes	mm
1	5	3	.4	2	3	6
1150	10,6+0,1	5,0-5,1	0,2(0,35)			
325	9,3-9,5	1,7-2,3	0,2(0,3)			
		1				

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

1 Uppe	er rated speed	rev/min	Interme	ediate rate	d speed	(4)	Lower	rated speed	(3) 10	rque control
Degree of deflection of control	Control rod travel	Control rod travel mm rev/min				Control- lever deflection	rev/min	Control rod travel mm	tea/win	Control rod travel mm
lever 1	2	3	4	5	6	in degr ee s 7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 21	325	8,9	1150	10,6-10,7
,	x = 4	,0					100 325	min. 19,5 9,3-9,5		11,6-11,7 11,0-11,3
ca. 54	9,6	1190-1200	1					45 = 2,0	300	11,0-11,3
29		1230-1260 0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2b Ft	ill-load stop	6 Rotational- speed limitat	11.32	iel delivery paracteristics	Starting t	luel delivery 5	4a Idle stop		
Test oil to rev/min t	emp 40°C (104°F) cm /1000 strokes 2	Note changed to) rev/min 3	rev/min	cm //1000 strokes 5	rev/min	cm 1/1000 strokes	rev/min 8	Control rod travel mm	
1150	50,0-51,0 (48,5-52,5)	1190-1200*	•	-	•	-	•	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

9.84

WPP 001/4 SOA 3,7 a 1
1. Edition

En

PES 4 A 75 D 410/3 RS 1183 Komb.-Nr. 0 400 464 104

RSV 325-1400 A 8 B 742 - 1L

supersed& company Sonacome F 4 L 912

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1,85-2,05)

mm (from BDC)

mm 2	cm 4100 strokes 3	Difference cm·/ 100 strokes 4	Control rod travel mm	Fuel delivery cm*/100 strokes	Spring pre-tensioning (forque-control valve) mm
11,0+0,1	5,5-5,6	0,2(0,35)			
7,9-8,1	0,8-1,4	0,2(0,3)			
	11,0+0,1	3 11,0+0,1 5,5-5,6	mm 2 cm 1100 strokes 100 strokes 4 11,0+0,1 5,5-5,6 0,2(0,35)	mm (2) cm 100 strokes 100 strokes 4 2 11,0+0,1 5,5-5,6 0,2(0,35)	mm 2 cm /100 strokes 100 strokes 2 cm /100 strokes 3 11,0+0,1 5,5-5,6 0,2(0,35)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	r rated speed Control rod travel mm		Intermed	diate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm	3 to	rque control Control rod travel mm
loose	800 X =	0,3-1,0	-	•	-	ca. 18	325 100	7,5 min. 19,		11,0-11,1 12,0-12,1 11,7-12,0
ca. 71	4,0 1	440-1450 485-1515 ,3-1,7					325 640 -	7,9 - 8, 700 - 2,		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	speed limitat			uel delivery naracteristics	Starting t	Starting fuel delivery 5 4a Idle stop			
rev/min	emp 40°C (104°F) cm*/1000 strokes 2	inote changed to) rev/min 3	rev/min 4	cm//1000 strokes	rev/min	cm ¹ /1000 strokes	rev/min 8	Control rod travel mm	
1400	55,0-56,0 (53,5-57,5	1440-1450*	800	50,0-52,0 (48,5-53,5)	-	-	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

9.84

BOSCH

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WPP 001/4 SOA 5,6 a
1. Edition

En

PES 6 A 75 D 410/3 RS 1197

RSV 325-1400 A 8 B 742-1 L

company Sonacome

Komb.-Nr. 0 400 466 079

engine F 6 L 912

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1.85-2.05)

mm (from BBCRW = 9,0-12,0 mm

Control rod travel	Fuel delivery cm/100 strokes 3	Difference cm ^{-y} 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ¹ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
12,4+0,1	5,9-6,0	0,25(0,4)			
9,4-9,6	0,9-1,5	0,2(0,35)			
	travel mm 2 12,4+0,1	travel cm /100 strokes 2 cm /100 strokes 3 12,4+0,1 5,9-6,0	travel mm 2 cm 1/100 strokes 100 strokes 4 12,4+0,1 5,9-6,0 0,25(0,4)	travel mm 2 cm 1/100 strokes 2 cm 1/100 strokes 4 cm 1/100 strokes 4 mm 2	travel

Adjust the fuel delivery from each outlet according to the values in ${f L}$

B. Governor Settings

1 Uppe	r rated speed	j rev/min	Interme	diate rated	speed	(1)	Lower	rated speed	(3) to	rque control
Degree of deflection of control fever	Control rod travel mm	Control rod travel mm rev/min	4	5	6	Control- lever deflection in degrees 7	rev/min	Control rod travel mm 9	rev/min	Control rod travel mm
loose	800	0,3-1,0	-	-	-	-	325	9,0	1380	12,4-12,5
•	x = 4	75						min. 19,5	500 865	13,2-13,3 12,8-13,0
ca. 67	11,4 4,0 1705	1420-1430 1540-1570 0,3-1,7					325 680-74	9,4-9,6 0 = 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop	Rotational speed limitat		el delivery aracteristics	Starting t	uel delivery 5	4a Idi	e stop
rev/min	emp 40°C (104°F) cm*/1000 strokes 2	Note changed to) rev/min 3	revimin 4	cm ¹ /1000 strokes 5	rev/min	cmV1000 strokes 7	rev/min 8	Control rod travel mm
1380	58,5-59,5 (57,0-61,0)	1420-1430*	800	51,5-53,5 (50,0-55,0)	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.84

40

WPP 001/4 MWM 5,9a 1. Edition

En

PES 6A80D320RS 1271

RSV 350-1500A2B2122R

supersedes

company

MWM D 229-6 94 kW

Komb.-Nr. 9 407 083 274

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,2-2,3 (2,15-2,35)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ¹ /100 strokes 3	cm*/ 100 strokes 4	mm 2	cm*/100 strokes	mm 6
1480	9.7-9.8	5.6-5.7	0,25(0,4)			
350	6,9-7,1	0,7-1,1	0,2 (0,35			
		•				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	crated speed Control rod travel mm	t rev/min . Control rod travel mm rev/min 3		fiate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm		rque control Control rod travel mm
loose	800 X =	0,3-1,0	-	-	-	ca.18	350 100	6.5 min.19,0		10,2-10,5
ca.51	8,7 4,0 1740	1520-1530 1555-1585 0,3-1,7					350 650-71 810	6,9-7,1 0 = 2,0 max.1,0	800 500	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop emp=40°C (104°F)	6 Rotational- speed limitat	Starting I	fuel delivery 5	49 ld	le stop		
	cm /1000 strokes	Note changed to 1 rev/min 3	rev/min	cm /1000 strokes 5	rev/min	cm/1000 strokes 7	rev/min 8	Control rod travel mm
1480 1000	55,5-56,5 (54,0-58,0) 55,5-57,5 (53,5-59,5)	1520-1530*	800 500	53,0-55,0 (51,0-57,0) 48,5-50,5 (46,5-52,5)	100	19,0-21,0 mm RW	350	7,0

Checking values in brackets

* 1 mm less control rod travel than col 2

9.84

BOSCH

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung. 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Rapublic of Germany Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH.

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WPP 001/4 MWM 5,9 a1 1. Edition

Eπ

PES 6 A 80 D 320 RS 1271

RSV 350-1150 A 2 B 2129-1R

Komb.-Nr. 9 407 083 281

supersedes MWM company

D 229-6

^{ngine} 77 kW (105 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection, Pump Settings

Port closing at prestroke

(2,15-2,35)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm/100 strokes 3	cm ⁻ / 100 strokes 4	mm 2	cm ¹ /100 strokes	mm 6
1150	9,4-9,5	5,0-5,1	0,25(0,4)		2	
350	6,9-7,1	0,7-1,0	0,2(0,35)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control fever	r rated speed Control rod travel mm		Interme	diate ra	aled speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm 9	3 To	rque control Control rod travel rmm
lose	800 X =	0,3-1,0	-	-	•	ca.19	350 100	6,5 min.19,0		10,3-10,5
ca.44	8,5 4,0 1400	1170-1180 1210-1240 0,3-1,7		_			350 680-74 800	6,9-7,1 D = 2,0 max.1,0	500	11,0-11,1

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Fu	ill-load stop	6 Rotational- speed Irmitat		uel delivery naracteristics	Starting t	fuel delivery 5	4a) Id	e stop
Test oil to rev/min t	emp 40°C (104°F) cm*/1000 strokes 2	Note changed to) rev/min 3	rev/min	cm ¹ /1000 strokes 5	rev/min 6	cm ^y 1000 strokes 7	rev/min 8	Control root travel mm
1150	49,5-50,5 (48,0-52,0)	1170-1180*	900 500	51,5-53,5 (49,5-55,5) 53,0-55,0 (51,0-57,0)	100	19,0-21,0 mm RW	350	7,0
						,		

Checking values in brackets

* 1 mm less control rod travel than col 2

9.84

BOSCH

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung. 1980 by Robert Bosch GmbH. Postfach 50. D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprime en Republique Fédérale d'Allemagne par Robert Bosch GmbH.

WPP 001/4 EIC 5,9 b

4. Edition

En

Testoil-ISO 4113

PES 6 A 80 D 320 RS 1280

Komb.-Nr. 0 400 476 071

RSV 300-1150 AOB 2001 DR

supersedes

3.84

company: engine

Eicher

EDK 6-4 Saugmotor

77 kW (105 PS)

1 - 5 - 3 - 6 - 2 - 4 je 60°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings (2,10-2,30)

Port closing at prestroke (2,10-2,30) 2.15-2.25 mm (from 6DC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	cm³/ 100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
1130	8,9-9,0	5, 1 - 5, 2	0,2(0,35)			
300	6,1-6,3	0,7 - 1,3	0,2 (0,3)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	e rated spe	ed	(4) Lowe	r rated spi	eed	(3) To	rque control
Degree of deflection of control lavar	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	-	•	ca. 29	300	5,7	1 130	8,9-9,0
10036	X =	6,0				!	100	min.19,5	795	9,2-9,4
ca. 53	1170-1	180=7,9	ļ			Į	300	6,1-6,3		9,5-9,6
⑤	1215-1	245=4,0 0,3-1,7					420 - 4 650	80= 2,0 max. 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

② Full-load stop Test oil temp. 40°C (104°F) rev/min cm²/1000 strokes 1		Rotational- speed limitat.	6 Rotational- speed limitat. 3a Fuel delivery characteristics			Starting fuel delivery idle		5a idle stop		
		Note: changed to rev/min 3	rev/min cm³/1000 strokes 4 5		rev/min cm³/1000 strokes 6 7		rev/min 8	Control rod travel mm		
1130	51,5 - 52,5 (50,0 - 54,0)	170-1180*	900 500	48, 5 - 51, 5 (47, 0 - 53, 0) 46, 5 - 48, 5 (45, 0 - 50, 0)	100	19,5-21,0 mm HW	300	6,2		

Checking values in brackets

* 1 mm less control rod travel then col. 2

9.84

40

WPP 001/4 KHD 1 g 10

2. Edition

Εn

PES 2 A 80 D 310/3 RS 1322 RSV 325-1150 A 8 B 2011-1 L

Komb.-Nr. 0 400 462 054

supersedes6.83

company
engine

KHD
F 2 L 912
25 kW bei
2300 min
tractor D 3607-

S 33

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

(1,85-2,05)

mm (from BDC)

Rotational speed rev/min t	Control rod travel	Fuel delivery cm\$100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm	Fuel delivery cm 100 strokes	Spring pre-tensioning (torque-control valve) mm 6
1150	11,1+0,1	5,9-6,0	0,25(0,4)			
325	8,9-9,1	1,2-1,8	0,2(0,35)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1 Uppe	er rated speed	rev/min	Interme	diate rate	speed	4	Lowe	rated speed	(3) To	rque control
Degree of deflection of control lever	Control rod travel mm	Control rod travel mm rev/min 3	4	5	6	Control- lever deflection in degrees 7	rev/min 8	Control rod travel mm	rev/min	Control rod travel mm
loose	800 x =	0,3-1,0 6,0	-	•	-	ca.26	325 100	8,5 min.19,5	1150 500	11,1-11,2
ca.60	9,9 4,0 1480	1190-1200 1320-1350 0,3-1,7					325 690-75	8,9-9,1 0=2,0	1010	11,5-11,7

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop emp_40°C (104°F)	Rotational-speed limital Note:			starting fuel delivery 5			4a idle stop	
rev/min	cm\$/1000 strokes	changed to) rev/min 3	rev/min	cm³/1000 strokes	rev/min	cm ³ /1000 strokes 7	rev/min	travel mm 9	
1150	59,0-60,0 (57,5-61,5)	1190-1200*	750	57,0-59,0 (55,0-6 ¹ ,0)	100	19,5-21,0 mm RW	-	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

10.84



Geschaftsbereich KH Kundendienst Kfz-Ausrustung

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WPP 001/4 STE 6,0 h 6 1. Edition

PE 6 A 85 D 412 RS 2303 Y Komb.-Nr. 0 400 656 159

ROV 250-1400 AB 879 DL

supersedes companySteyr engine WD 612.90 154 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed	Control rod travel	(2,45-2,65) Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	cm³/ 100 strokes 4	mm 2	cm³/100 strokes 3	mm 6
1400	14,2+0,1	9,6-9,7	0,3(0,45)			
250	8,9-9,1	1,1-1,6	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated s				Intermediate	rated sp	4		Lower rated	speed	1	Slid i ng s	leeve travel
deflection	rev/min Control rod travel mm	ULU CANAL	9	Degree of deflection of control lever	rev/min	Control rod travel mm	O	Degree of deflection of control lever	rev/min	Control rod travel	rev/min 10	mm (1)
max.	1450	15,2-17,	B I	-	-	-	-	ca. 13	100	min.10,4		0,5-0,7
ca. 47	13,2 4,0 1700	1440-1450 1580-1610 0-1,0	00						250	8,9-9,1 40=2,0 max.1,0	600	3,3-3,7 5,7-5,9 8,4
								③				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

1	d stop np. 40°C (104°F) 2			idle switchis	. •	Torque- travel	Control od travel mm	
1	2	3	4	5	6	7	8	9
LDA 1400	0,7 bar 96,0-97,0 (94,0-99,0)	1440-1450*	LDA 800	0,7 bar 91,5-94,5 (89,5-96,5)	•	_	-	-
			LDA	0 bar 12,5-12,6 mm RW				

Chucking values in brackets

* 1 mm less control rod travel then col. 2

10.84

BOSCH

D. Adjustment Test for Manifold Pressure Compensator

STE 6,0 h 6

- 2 -

Test at n =

1400

rev/min decreasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE6ARS2303Y + RQVPA879DL	0,70	0 0,28 0,22	14,2-14,3 12,5-12,6 13,8-13,9 12,9-13,1

Notes

(1) when n :

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

WPP 001/4 STE 6,0 h 5 1. Edition

En

PE 6 A 85 D 412 RS 2303 Z Komb.-Nr. 0 400 656 153

RQV 250-1400 AB 879 DL

supersedes

companSteyr
engine WD 612-68 u. -72

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke (2.45-2.65)	mm (from BDC)	RH = 9,0)-12,0	
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400 250	13,2+0,1 8,6-8,8		0,3(0,45) 0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated a	peed		Intermediate	rated sp	eed	Lower rated	speed		Stiding	leeve travel
deflection of control	rev/min Control rod travel mm 2	Control rod travel mm rev/min 28	Degree of deflection of control laver	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3	rev/min	mm 11
max. ca. 49	1400 12,2 4,0 1700	15,2-17,8 1440-1450 1585-1615 0-1,0	-	•	-	ca. 13		min.8,5 6,4-6,6 380=2,0 max.1,0	600	0,5-0,7 3,3-3,7 5,7-5,9 8,4
						<u> </u>				

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten	d stop	intermediate speed	Fuel delic high idle s	rery characteristics (5a)	Starting Idle switchin	. •	Torque- travel	control 5
rev/min	cm³/1000 strokes	rev/min 49	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	8	7	8	9
LDA 1400	0,5 bar 85,5-86,5 (83,5-88,5)	1440-1450*	LDA 800	0,5 bar 80,0-83,0 (78,0-85,0)	100	133,0-143,0 (130,0-146,0		-
		4	LDA 500	0 bar 56,0-59,0 (54,0-61,0)				

Chucking values in brackets

* 1 mm less control rod travel then col. 2

10.84

BOSCH

D. Adjustment Test for Manifold Pressure Compensator

STE 6,0 h 5

- 2 -

Test at n =

1400

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE6ARS2303Z + RQVAB879 DL	0,50	0,17 0,15 0	13,2-13,3 12,9-13,0 12,2-12,5 12,0-12,1

Notes

(1) when n

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 2 WPP 001/4 KHD 6,1 g and Governors

4. Edition

PES 6 A 85 D 410/3 RS 2415

Komb.-Nr. 0 400 836 024

RQ 300/1250 AB 935 DL

supersedes 9.82

company: KHD engine

BF 6 L 913 T 96 kW

2500 min-1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDC)

	(1	85-2.05)	11111 (110111 000)	Cy I	• D	
Rotational speed rev/min	Control rod travel • mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	11,1-11,2	8.0 - 8.1	0,3(0,45)			
300	7,3-7,5	0,9 - 1,5	0,2(0,4)			
				!		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che	ck (1)	Full-load : Setting po	oint	-	cifications (4)	Idle spec	_	-	cifications (5)	Torque	control 3
rev/min	Control rod travel mm	rev/min 3	Control red travel mm	Control and travel mm 5	rev/min 6	rev/min 7	Cantrol red travel rmm	rev/min 9	Control rod travel mm	rev/min	travel mm
800	19,2-10,8	800	20,0	10,1	1295-1310	300	7,4	100	min.8,8	1250	11,1-11,2
VH =	max. 64°			4,0 1500	1365-1395 0 - 1,0		1	300 700	7,3-7,5 max. 1,0		12,3-12,4 12,0-12,2
								545-	1		11,3-11,6

Torque-control travel

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load deligovernor con Test oil temp.		Control rod stop 3	Fuel deliv	(2L)	Starting fuel delivery Idle speed		
rev/min c	:m³/-1000 strokes	rev/min 3	rev/min 4	cm ³ /~1000 strokes 5	rev/min 6	red travel cm ³ /1000 strokes:/ mm 7	
	80,0 - 81,0 (78,0 - 83,0)	-	800	69,5 - 72,5 (67,5 - 74,5)	100	19,0 - 21,0 mm RW	

Checking values in brackets

9.84

ondienst. Kfz-Ausrüstung. »bH, Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany brale d'Allemagne par Robert Bosch GmbH.

H00 001/4 KHD 5.1 d

2. Edition

Testoil-ISO 4113

PES 5 A 80 D 410/3

Komb.-Nr. 0 400 865 016

EP/RSV 325-1150 A3 B2014DL

supersedes 5.78

company

KHD F5 L912

engine:

63kW - 85PS

1 - 3 - 5 - 4 - 2 0 - 72-144-216-288° +0,5° (+0,75°) All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke	1,90-2,00 (1.85-2.05)	mm (from BDC)			
Rotational speed rev/min t	Control rod travel mm 2	Fuel delivery 2526 cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1150	11,8	5,5 - 5,6	0,2(0,35			
	+0,1					
325	9,0-9,2	0,9 - 1,5	0,2(0,3)			
775/850		0,9-1,5 C, 4-5	0,3(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper Degree of deflection of control lever	deflection travel of control			rev/min	Control rod travel mm	Degree of deflection of control lever Lower rated speed Control travel travel mm		3 Tor	que control Control rod travel mm	
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0				ca.21	325	5,0		<u>+</u> 0,1
	Χ =	4,75					100	min. 19		11,8
€ 3.55	10,8 4,0 1350	1190-1200 1235-1265 0,3 - 1,7					325 390-4 500	5,4-5,6 50 = 2,0 0 - 1	775	12,1 12,7 12,8

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-to	ad stop	6 Rotational- speed limitat.		el delivery eracteristics	Starting Idle	fuel delivery	5e Idle stop		
Test oil temp rev/min 1		Mote: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm 9	
1150	55,5 - 56,5 (54,0 - 58,0)		775	57, 0 - 59, 0 (55, 5 - 60, 5)	•	-	•	-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

40

WPP 001/4 DAF 8,3 n 1 3. Edition

<u>En</u>

Testoil-ISO 4113

PE 6 A 95 D 410 RS 2575

RSV 250-1200 A5B 2151 L

supersede 6.83

Komb.-Nr. 0 400 676 171

company DAF
engine DH 825

Specifications apply to test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

1.95-2.15)

mm (from BDC

	(1,30-2,10)				
Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
2	3	4	2	3	6
10,4+0,1	7,3 - 7,5	0,35(0,6			
6,0-6,2	0,7 - 1,1	0,35(0,5	;)		
	mm 2 10,4+0,1	Control rod travel mm cm³/100 strokes 2 10,4+0,1 7,3 - 7,5	Control rod travel Fuel delivery Difference cm ³ /100 strokes 3 10,4+0,1 7,3 - 7,5 0,35(0,6)	Control rod travel mm cm³/100 strokes 2 10,4+0,1 7,3 - 7,5 Difference cm³/ 100 strokes mm 2 0,35(0,6)	Control rod travel mm cm³/100 strokes 3 10,4+0,1 7,3 - 7,5 Difference cm³/ 100 strokes mm cm³/100 strokes 2 0,35(0,6

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	(4) Lowe	r rated spe	ed	3 Torque control		
Degree of deflection of control lever	rev/min		Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel	
1	2	3	4	5	6	7	8	9	10	11	
loose	800	0,3 - 1,0	-	-	-	ca. 24		5,6	1200	10,4+0,	
	X =-	5,0					250 635 - 6	6,0-6,2 $5 = 2,0$	800	11,1+0, 11,1+0,	
€ a.58	9,4 4,0 1505	1240-1250 1340-1370 0,3-1,7							940	10,7+0,	

The combers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-to	oad stop	Rotational- speed limitat.		ol delivery sracteristics	Starting	fuel delivery	Se Idle stop		
Test oil terr rev/min 1	p. 40°C (104°F) cm³/1000 strokes 2	Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm	
1200	73,0-75,0 (71,0-77,0)	1240-1250*	800	74,5-77,5 (72,0-80,0)	100	121,5-131,5 bei 19,5- 21,0 mm RW		-	

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.84

40

WPP 001/4 DAF 6,2 n
5. Edition

Ε'n

PE 6 A 90 D 320 RS 2577

RSV 250-750 A 7 B 2125 R

supersedes 5.84 DAF DT 615

Komb.-Nr. 0 400 676 167

Specifications apply to test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing difference between controlrod travel 9 mm and max. =2,5-3,5° camshaft

Port closing at prestroke (2, 15-2, 35) mm (fr

mm (from BDC)

	2.21	1-2.30			•	
Rotational speed rev/min	Control rod travel	Fuel delivery cm //100 strokes	Difference cm ^{-//} 100 strokes	Control rod travei mm	Fuel delivery cm ^{-/} 100 strokes	Spring pre tensioning (torque-control valve)
750	11,0+0,1	7,5 - 7,7	0,4 (0,55	2	3	6
	11,0.0,1	7,7-7,1	0,4 (0,55			
250	5,9-6,1	0,8 - 1,4	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of	r rated speed Control rod travel mm	rev/min Control rod travel mm rev/min 3	Intermed	diate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm	3 To	rque control Control rod travel mm
loose	800 X. =	0,3-1,0 5.0				ca.15	250	6,0	-	-
23.40	10,0 4,0 955	770-780 785-805 0,3-1,7					260-320	= 2,0		

The numbers denote the sequence of the tests Set idle-speed auxiliary spring at 2 mm control-rod travel.

C. Settings for Fuel Injection Pump with Fitted Governor

	ill load stop emp_40°C (104°F)	Rotational- speed limitat		uel delivery paracteristics	Starting Idle	luel delivery 5	4a) Idle stop		
rev/min	cm ^{-/} 1000 strokes 2	changed to) rev/min 3	rev/min 4	cm ¹ /1000 strokes 5	rev/min 6	cm/1000 strokes 7	rev/min 8	Control rod travel mm	
750	75,0-7 7 ,0 (7 3 ,0-7 9 ,0)	760-770*	-	-	100	19,5-21,0 mm RW	-	_	

Checking values in brackets

* 1 mm less control rod travel than col 2

10.84

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 1 h

5. Edition

Testoil-ISO 4113

· ·	TIOU NOTOGOE (T)	supersed 6.83 companyK H D
PE 10 A 95 D 610/4LS2589 RQV 300-	-1150 AB1088L (2) -1150 AB1047DL (3)	engine F 6 L 413 FW (1) (102kW-139PS)
PE 12 A 95 D 610 LS2590 RQV 300- All test specifications are valid for Bosch Fuel Injection Pur	-1150 AB1047DL (4)	(2) F 8 L (136kW-185PS) (3) F10 L (170kW-231PS) (4) F12 L (204kW-277PS)
A Prot Interston Brown Cattle		-4

A. Fuel Injection Pump Settings
1,50-1,60
Portclosing at prestroke
(1,45-1,65)
mm

bei 2300 min" 'Tunnelling or mining vehicles

Port closing at pres	stroke	(1.45-1.65)	mm (from BDC)	Tuni	Tunnelling or mining vehicles						
Rotational speed ray/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control vaive) mm 6					
1150	9,0-9,2		0,3(0,6)								
300	6,2-6,3	1,4-2,0	0,3(0,5)								
800/1000		C, 4-5	0,4(0,7)								

Adju. The fuel delivery from each outlet according to the values in

B. Governor Settings

(1) 2587 mit 1088L

Upper rated s			_	Intermediate	rated sp	•	- 1	Lower rated	epeed			Sliding s	leeve travel
deflection	rev/min Control	G at A a .	וכ	Degree of deflection of control		Control rod travel	- 1	Degree of deflection of control		Control ro	d	 	0
lever	rod travel	rev/min (2			rev/min	mm (rev/min	mm	(3)	rev/min	1
1	2	3	_	4	5	6	_	7	8	9		10	11
ca.68	1150 1350	15,2-17,8 0 - 1	3		-	-		ca.11		min.7, 5.9-6.		300 600	1,2-1,3 3,1-3,4
ca.64		1190-1200 1220-1250						320-400	610-	670=2,		1190	8,5
								320-400 ③					

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ten			Fuel delic high idle s	very characteristics (56)	Starting idle switchin		Torque travel	Control cod
rev/min	cm ³ /1000 strokes	rev/min 49	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
1150	77,5 - 79,5. (75,5 - 81,5)	1190-1200*	800	80,5 - 82,5 (79,0 - 84,0)	100	119,0-129,0	800	9,0-9,1 9,5-9,6 9,5-9,6

Checking values in brackets

* 1 mm less control rod travel than coi. 2

Set control-rod stop to contact at 500 min/1

Cam sequence and angular cam spacing

$$1 - 4 - 9 - 8 - 5 - 2 - 11 - 10 - 3 - 6 - 7 - 12
0 - 15-60-75-120-135-180-195-240-255-300-315^{\circ}$$
(4)

Tolerance $^{+}$ 0,50 ($^{+}$ 0,75)

Upper rated	speed			Intermediate	rated spe	eed		Lower rated	speed			Studion	lerve travel
Degree of deflection of control lever		Control rod travel mm rev/min		Degree of deflection of control lever	rev/min	Control ro travel		Degree of deflection of control lever	rev/min	Control root travel		rev/min	mm
1	2	3	,	4	5	6		7	8	9		10	11
max.	1150	15,2-17 	,8 	-	-	-	•	ca. 11	300	min. 7 5,9-6, 670=2,	1	300 600 1190	1,2-1,3 3,1-3,4 8,5
ca.64	8,0 4,0 1350	1190-120 1220-125 0 - 1,	50					320-400 38)				

Torque control travel a

0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full load of Control ro Test oil ter		Rotational-speed (20) Ilmitation Intermediate speed	Fuel deln high idle s	rery characteristics (58) speed (56)	Starting Idle switchin	<u>(</u> ,	Torque-control (
rev/min	cm /1000 strokes	rev/min 4a	iea/wiu	cm ¹ /1000 strokes	rev/min	cm /1000 strokes	rev/min	Control roo fravel mm
1	2	3	4	5	6	[7	8	9
1150	77,5 - 79,5 (75,5 - 81,5)	1190-1200*			100	119,0-129,0	800	9,0-9,1 9,5-9,6 9,5-9,6
			800	80,5 - 82,5				-,,
				(78,5 - 84,5)				
		Set	contro	1-rod stop to	cont	tact at 500 m	in/1	

Checking values in brackets

1 mm less control rod travel than col 2

Testoris() 4113

B. Governor Settings

(3) 2589 mit 1047 DL

Honer	ated speed			Italamadata					4			1	
Opperio	area speed			Intermediate	rated spe	ea		Lower rate	a speea			Sliding sleeve travel	
Degree of deflection of control	on [Control	Control rod	(19)	Degree of deflection of control	ŀ	Control roo	đ	Degree of deflection	1	Control r	od		①
lever	mm	rev/min	(28)	lever	rev/min	mm	•	of control lever	rev/min	mm	(3)	rev/min	mm
1	2	3		4	5	6		7	8	9		10	11
пах	1150	15,2-17	,8	-	-	-		ca. 11		min.7		300	1,2-1,3
										5,2-6		600	3,1-3,4
ca.6	4 8,0	1190-12	00						620-	680=2	,0	1190_	8,5_
	4,0	1230-12	60					330-410					
	1350	0 - 1	•0							¥			
								30	<u>L</u>				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil tei		I witerine chaire appear		very characteristics (Sa)	11010	fuel delivery 6 ng point	Torque-control 5 travel Control ro	
rev/min	cm³/1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	7	nkm/vet	travel mm
1150	78, 5 - 80, 5 (76, 5 - 82, 5)	1190-1200*	800	83,0-86,0 (80,5-88,5)	100	116,5-1265 113,5-129,5 = 14,4-14,8 mm RW) 500 895	9,1+0,
hecking v	alues in brackets				<u> </u>	* 1 mm less contr	ol rod tra	rei than col

0

Upper rated s	speed			Intermediate	rated sp	eed	Lower rated	speed			
Degree of deflection of control lever	rev/min Control rodtravel mm	Control rod travel mm rev/min	(2a)	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel		leeve travel
1	2	3		4	5	6	7	8	9	rev/min 10	mm 11
max.	1190	15,2-17 	,8 	-	-	-	ca.11		min. 7,7 6,1-6,3	300	1,2-1,3 3,1-3,4
ca. 64		1190-12 1225-12								1120_	<u>8,5</u>
	1350		•()		l		320-425				ı
	-		* 17				(3a)				

Torque control travel a -

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Control roi lest oil ten	elivery d slop np 40°C (104°F) 2	Rotational-speed (2b) Irmitation Intermediate speed	Fuel deli high idle :	rery characteristics	Starting Idle switching	(4.7)	Torque travel	control 5
ev/min	cm²/1000 strokes	rev/min (4a)	rev/min	cm ¹ /1000 strokes	rev/min	cm·/1000 strokes	rev/min	Control rod travel mm
	† • • • • •		4	2	6	7	8	9
1150	78,5-80,5 (76,5-82,5)	1190-1200*	800	83,0-86,0 (80,5-88,5)	100	116,5 -126,5 (113,5-129,	1150 5)500	9,1+0,
	(, , , , ,	i	İ					9,4+0,
							1030	

Checking values in brackets

Testoil-ISO 4113

* 1 mm less control rod travel than col. 2

B. Governor Settings

Upper rated s	speed			Intermediate	rated spe	ed	Lower rated	speed			Studios	
of control	Control rod travel		(1)	Degree of deflection of control	i		Degree of deflection of control	l	Control rod travel		Skaing s	leeve travel
lever	mm	rev/min	(59)	lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
P	2	3		4	5	6	7	8	9	_	10	11
						ł						
						l						
	Ì		ľ									
			- 1									
							3a				1	
	<u> </u>					L						

Torque control travet a

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter	delivery od stop mp 40°C (104°F) (2)	Rotational-speed (2b) Ilimitation intermediate speed	Fuel deli high idle	very characteristics 5a	1010	fuel delivery 6	Torque-	control (5
rev/min	cm³/1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min		rev/min	Control ro travel mm
	1	3	4	5	6	7	8	9
					l	ļ		
					[.			
			,					
	1	L			L			

Checking values in brackets

* 1 mm less control rod travel than col 2

WPP 001/4

KHD 6,1 h

5. Edition

PES 6 A 85 T 410 RS 2591

RS 325/1325 AOB 691 DL AOC 691 DL supersedes

company

11.82 KHD

Komb.-Nr. 0 400 876 283

engine

BF 6 L 913 - BW 124 kW (169 PS) / 2650 min-1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Testoil-ISO 4113

2,50-2,60 (2,45-2,65)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm (2)	cm³/100 strokes	cm ³ / 100 strokes	mm	cm³/100 strokes	mm
1	2	3	4	2	3	6
1325	12,8-12,9	9,0-9,1	0,3(0,45)			
325	8,4-8,6	0,9-1,5	0,2(0,4)			7
				;		
				}		

Adjust the fuel delivery from each outlet according to the values in

VH=Control lever

Vertical position = 40° FH=Accelerato lever Horizontal position = 40°

B. Governor Settings

	r rated speed Control rod travel mm		Intermed	diate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm	1 3	rque control Control rod travel mm 11
loose		0,3-1,0				FHca.21 VH max.	325 100 400 -	8,5 min.10,0 425= 6,0	1325 1000 850	12,8-12,9 12,8-12,9 12,9-13,1
PH max.		1445= 4,0 0,3-1,7							500	12,9-13,1

C. Settings for Fuel Injection Pump with Fitted Governor

2b Fu	II-load stop	6 Rotational- speed limitat	(3a) Fi	uel delivery naractenstics	Starting t	fuel delivery 5	(4a) Idi	e stop
Test oil to	cm\$/1000 strakes	Note changed to) rev/min	rev/min	cm ⁹ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
LDA 1325	0,7 bar 90,5-91,5 (88,5-93,5)	1365-1375*	LDA 1000 LDA 850	0,7 bar 85,0-88,0 (83,0-90,0) 0,7 bar 83,5-86,5		104,0-114,0 =17,8- 18,2 mm RW (Electroma	gnet	
		LDA 0 bar	500	(81,5-88,5) 55,5-58,5 (53,5-60,5)		24 V)		

Checking values in brackets

* 1 mm less control rod travel than col 2

D. Adjustment Test for Manifold Pressure Compensator

KHD 6,1 h - ? -

Testatn

500

rev/min decreasing the state - in bar gauge pressure

	XXXXXXXX	^^^	
Pump/governor	Seiting	Measurement	Control rod travel difference
· ·	Gauge pressure	bar Gauge pressure	bar mm (1)
2591 + 691	L DL 0,70	0.43 0.28 0	12,9 - 13,1 12,7 - 12,8 12,1 - 12,3 11,5 - 11,7

Notes

(1) when n

rev/min and gauge pressure =

har (maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (A) and Governors

9. Edition

PES 6 A 90 D 410 RS 2596 RSV 575-1250 A 1 B 618 L

Komb.-Nr. 0 400 876 295

A 1 C 618 L

supersedes 2.82

Daimler-Benz OM 352 A

115 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1.95-2.15)

mm (from BDW = 9.0 - 12.0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm/100 strokes 3	Difference cm ^{-y} 100 strokes 4	Control rod travel mm 2	Fuel delivery cm/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1230	13,2+0,1	7,8-7,9	0,3(0,45)			
575	7,2-7,4	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	crated speed Control rod travel mm		Interme	diale rate	d speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm	3 To	rque control Control rod travel mm
loose ca.58	12,2 12 4,0 12	0,3-1,0 = 4,0 250-1255 274-1291 3-1,7		•	•	ca.27	575 100 575 585-645	7,3 min. 19,0 7,2-7,4 = 2,0	•	-

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop	6 Rotational- speed limitat	speed limitat Characteristics			Starting fuel delivery 5 48 Idle stop				
Test oil t rev/min t	emp 40°C (104°F) cm*/1000 strokes 2	Note changed to 1 rev/min 3	rev/min 4	cm ¹ /1000 strokes 5	rev/min	cm ¹ /1000 strokes	rev/min	Control rod travel mm		
1230	77,5-78,5 (75,5-80,5	1250-1255*	-	-	100	80,0-90,0 (77,0-93,0) =16,0- 16,6 mm RW	-	-		

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.84

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Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 RAB 9.7 b

3. Edition

PES 6 A 95 D 420 LS 2595 Komb.-Nr. 0 400 846 514

RQ 200/1100 AB 1094-1 R

supersedes5.84

company:RABA D 2356 HM 6 U

162 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1.95-2.15)

mm (from BDC)

Rotational speed rev/min 1	travel "	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,3+0,1	12,1-12,3	0,3(0,6)			
200	6,0-6,2	0,8-1,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking PRG che		Full-load : Setting po					Idle speed regulation Setting point Test specifications 5				Torque control	
rev/min	Control rod travel mm 2	rev/min 3	Control red travel rnm 4	Centrel red travel mm 5	rev/min 6	rev/min 7	Control rad travel	rev/min 9	Control rod	rev/min 11	Control rod Uravel	
550 VH =	19,2-20,8 max. 46°	550	20,0		1145-1160 1175-1205			100 200 310- 400	min. 8,0 6,4-6,6 350=2,0 max.1,0	1100 500 750 855	11,3-11,4 11,9-12,0 11,7-11,9 11,5-11,7	
on flywei	ontrol travel ght assembly dimen		0,	mm	•	ed regula	ition: At		160 min ⁻¹		1 mm less contro rod trave	

C. Settings for Fuel Injection Pump with Fitted Governor

	letivery on control tever mp. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics	36)	Starting fuel delivery delete speed		
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5		rev/min '	cm 71000 strokes/Mink N	
1100	121,0-123,0 (119,0-125,0)	500	500	119,0-125,0 116,5-127,5) max. 117,0 max. 119,)		100	17,5-18,1	

Checking values in brackets

WPP 001/4 MB 5,7x3

3. Edition

Testoil-ISO 4113

PES 6 A 90 D 410 RS 2596 Komb.-Nr. 0 400 826 313 RSV 350-1400 AOB 1148 L

supersede 6.83

En

company Daimler Benz engine:

OM 352 A

115 kW (156 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

	Port closing at pres	troke	2-00-2-10	mm (from BDC)			
	Rotational speed rev/min	travel	Fuel delivery cm ³ /100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery . cm³/100 strokes	Spring pre-tensioning (torque-control valve)
1	1380	11,3+0,1	7,1 - 7,2	0,3(0,45)			
	350	7,9+0,2	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	(4) Low	er rated sp	eed	(3) To	rque control
Degree of deflection of control lever	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever	rev/min 5	Control rod travel mm	Degree of deflection of control lever		Control rod travel mm	rev/min	Control rod travel mm
loose	800	0,3 - 1,0	-	•	•	ca. 22	350	7,5	1380	11,3+0
10030	x =	5,0					100 350	min. 19 7.9-8.1	800 1200	12,3+0 11,6+0
ca.66	1430-1	40 = 10,3	· 				530-			11,0.0
	1510-1	40 = 4.0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full+k	pad slop	6 Rotational speed limitat.			Starting	fuel delivery	5a Idle stop	
Test oil tem rev/min 1	p. 40°C (104°F) cm³/1000 strokes 2	changed to		cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes	rev/min 8	Control rod travel mm
LDA 1380	0,7 bar 71,0-72,0 (69,0-74,0)	1430-1449*	LDA 700 LDA 500	0,7 bar 67,0-69,0 (64,5-71,5) 0 bar 58,0-59,0 (56,0-61,0)	100	78,0-88,0 bei 15,6- 16,0 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure ~ in bar gauge pressure

MB $5.7 \times 3 -2$

Pump/governor	Setting		Measurement	Control rod travel-
	Gauge pressure =	bar	Gauge pressure = bar	mm (1)
RS 2596 with AOB 1148 L	0,70			12,3-12,4
AUD TITO L			0	11,8-11,9
			0,38	12,0-12,1
				•

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Testing the hydraulic start-locking device

Locking at Unlocking at

0,4 - 0,5 bar 0,15 - 0,25 bar

Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 KHD 4,7 c 4. Edition

En

PES 5 A 80 D 410/3 RS 2603

Komb.-Nr. 0 400 865 023

RS 325/1650 AOB 2087 L AOC 2087 L supersedes 5,84

company engine KHD F 5 L 912

54 kW (73 PS) 3000 min-1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A power output

A. Fuel Injection Pump Settings

Port closing at prestroke

estoil-ISO 4113

1,9 -2,0 (1,85-2,05)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm (2)	cm¥100 strokes 3	100 strokes 4	ოო 2	cm³/100 strokes 3	mm 6
1490	9,9-10,0	5,1-5,2	0,2(0,35)			
325	8,7-8,9	1,7-2,1	0,2(0,3)			
			j			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

	r rated speed		Intermed	liate rated	speed	(Lower	rated speed	3 Torque control		
Degree of deflection	travel	travel				Control- lever		travel		travel	
of control lever	mm	mm rev/min			١.	deflection in degrees	rev/min	rnm m	rev/min	mm	
1	5	3	4	5	6	7	8	9	10	11	
loose	800	0,3-1,0	-	-	-	VHmax.	325	8,8	1	-	
						FHca.18		min.13,6			
VHca.49	8,9	1690-1700					325 550 -	8,7-8,9 590=2,0			
FH		1740-1770					600	max.1,8			
	1900	0,3-1,7									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	uli-load stop	6 Rotational- speed limitat		uel deilvery naracteristics	Starting I	luel delivery 5	48 Idle stop	
Test oil to rev/min 1	emp 40°C (104°F) cm3/1000 strokes 2	Note changed to) rev/min r	rev/min 4	cm ⁹ /1000 strokes 5	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1490	50,5-51,5 (49,0-53,0)	1690-1700*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

9.84

BOSCH

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (2) and Governors

WPP 001/4 KHD 12,7 p1 1. Edition

PE8A95D 410 LS 2608

RQ 300/1250 AB 929 L

supersedes

Komb.- Nr. 0 400 648 140

company: KHD

1-8-7-2-6-5-4-3 je $45^{\circ} \div 0.5^{\circ} (\div 0.75^{\circ})$

F8L413 F engine: 157 kW

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Rotational speed rev/min 1	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1250	9,3-9,	4 8,6-8,8	0,35(0,6			
300	6,4-6,6	1,2-1,8	0,35(0,5	5)		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che rev/min 1	Control rod	Full-load Setting por rev/min 3			cifications 4	Idle spe Setting (rev/min 7	Control Control red travel		cifications 5 Control rod travel mm	Torque rev/min 11	Control rod	3
600	15,6-16,4	600	16,0	8,3 4,0	1295-1310 1345-1375	300	6,5	100 300 410-	min.8,0 6,4-6,6 450 =2,0	650 945	9,3-9,4 9,7-9,8 9,5-9,7 9,3-9,6	

Torque-control travel on flyweight assembly dimension a =

1295-1310 min Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel injection Pump with Fitted Governor

Full-load d governor d Test oil ten	elivery on control lever cop. 40°C (104°F)	2	Control rod stop	3	Fuel deliv	ery characteristics	 Starting lidle spec	
rev/min 1	cm³/-1000 strokes 2		rev/min 3		rev/min 4	cm ³ /-1000 strokes 5	rev/min	Control rail travel cm ³ /1000 strokes / mm
1250	85,5-87,5 (83,5-89,5)		•		750	78,5-81,5 (76,0-84,0)	-	-

Checking values in brackets

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 12,7 p

3. Edition

_En

PE 8 A 95 D 410 LS 2608

ROV 300-1100 AB 1126 L

supersedes 5 • 84 KHD

Komb.-Nr. 0 400 648 128

company: F 8 L 413

1-8-7-2-6-5-4-3 je $45^{\circ} \div 0.5^{\circ} (\div 0.75^{\circ})$

engine: 133 kW/2200 min⁻¹

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(1.95-2.15)

mm (from BDC

		(1,30 2,10)				
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	9,5-9,6	8,8-9,0	0,35(0,6)			
300	5,9-6,1	0,9-1,9	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated:	epeed			Intermediate	rated sp	eed	Lower rated	speed		Clidion	Sliding sleeve traval	
Degree of deflection of control lever	rev/min Control rod travel mm 2	Control rod travel mm rev/min 3	(2) (2)	Degree of deflection of control lever	rev/min	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min	Control rod travel mm 3	rev/min	mm	
max.	1100	15,2-17	,8	-	-	-	ca. 14			250	1,1-1,3	
ca. 44	8,5 4,0 1345	1140-11! 1195-12: 0-1,	25				355-415			530 820 1100	3,6-4,2 5,8-6,0 8,1	
							3					

Torque control travel a = U, D mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-ros Test oil ten		Rotational-speed (2b) limitation intermediate speed	Fuel deli- high idle t	very characteristics (5e)	Starting idle switchli	٠. ٥	Torque- travel	-control 5
rev/min 1	cm ³ /1000 strokes	rev/min 49	rev/min 4	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	traval mm
1100	88,0-90,0 (86,0-92,0)	1140-1150*	700	90,5-93,5 (88,0-96,0)	100	120,0-130,0 (117,0-133,0) - 14,0-14,4 mm RW	500 825	9,5-9,6 0,1+0,1 9,9+0,2 9,6-9,9

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (A) and Governors

WPP 001/4 MWM 6,2 e 2

1. Edition

PES 6 A 90 D 320/3 RS 2660 Komb.-Nr. 0 400 866 114

RSV 325-1200 A0C 2182 R

company TD 226 B-6

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2,95-3,05 Port closing at prestroke (2,90-3,10) mm

estorio 41

mm (from BDC)

Rotational speed rev/min t	Control rod travel mm 2	Fuel delivery cm/100 strokes 3	Oifference cm ² / 100 strokes 4	Control rod travel mm	Fuel delivery cm/100 strokes	Spring pre-tensioning (forque-control valve) mm
1200	9,0-9,1	7,5-7,6	0,3(0,45)			
325	7,4-7,6	2,6-3,4	0,25(0,4)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

	er rated speed	rev/min	Intermediate rated speed			4 Lower rated speed			3 Torque control		
Degree of deflection of control	travel mm	travel mm rev/min				Control- lever deflection	rev/min	Control rod travel	rev/min	Control rod travel	
lever 1	2	3	4	5	6	in degrees 7	8	9	10	11	
loose	800	0,3-1,0	-	-	-	ca. 25	325	7,0	1200	9,0-9,1	
	x =	5,0					325	7,4-7,6	500	9,9-10,0	
ca ,51	8,0 4,0 1465	1240-1250 1300-1330 0,3-1,7					345-60	5=2,0	860	9,5-9,7	

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	2b) Full-load stop est oil temp 40°C (104°F) Rotational- speed limitat			uel delivery haracteristics	Starting t	fuel delivery 5	4a) Idle stop		
rev/min 1	cm 71000 strokes	changed to) rev/min 3	rev/min 4	cm ^{-/} /1000 strokes 5	rev/min	cm√1000 strokes 7	rev/min 8	Control rad travel mm	
1200	74,5-75,5 (72,5-77,5)	1240-1250*	500	59,5-60,5 (57,5-62,5)	100	133,0-143, (130,0-146, =19,5-21,0 mm RW	0)	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

WPP 001/4 KHD 1 o

4. Edition

Festoil-ISO 4113

PES 6 A 95 D 410 RS 2625

RSV 325-1150 A8B 674 DL A8C 674 L

supersedes 3.84

Komb.-Nr. 0 400 876 305

B F 6 L 913 B Bagger

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings
Port closing at prestroke (1.85-2.05) mm mm (from BDC)

Rotational speed rev/min	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
1150	11,4+0,1	8,0 - 8,2	0,3(0,6)			
325	7,2-7,4	1,6-2,2	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper	rated speed		Intermediate	rated spe	ed	4 Lowe	r rated spe	red	3 Tor	que control
Degree of deflection of control		Control rod travel	Degree of deflection of control	1	Control rod travel	Degree of deflection of control		Control rod travel		Control rod travel
lever	rev/min	mm	lever	rev/min	mm	lever	rev/min	uuu .	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	•	-	•	ca. 15	325	6,8	1150 500	11,4+0, 12, 1+0,
	X =	3,0					225		1000	11,8+0,
ca. 50	10,4	1190-1200					585 – 6	7,2-7,4 15 = 2,0		
(5)	4,0 1325	1265-1295 0,3 - 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-to	oad stop	6 Rotational- speed limitat.		et delivery aracteristics	Starting Idle	fuel delivery	Sa Idi	e stop
Test oil tem rev/min 1	p. 40°C (104°F) cm ³ /1000 strokes 2	Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm³/1000 strokes	rev/min 8	Control rod travel mm
LDA 1150	0,7 bar 80,0 - 82,0 (78,0 - 84,0)	1190-1200*	LDA 800 LDA 500	0,7 bar 83,0-86,0 (80,5-88,5) 0 bar 56,5-59,5 (54,5-61,5)	100	116,5-126,5 (113,5-129, = 15,9 - 16,4 mm RW	5)	

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Testatn =

500

rev/min decreasing pressure - in bar gauge pressure

KHD 1 o

2

	13
I	41
	180
	estoil
	16

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PES 6 ARS 2625	0,7		12,2 - 12,3
with A8B 674 DL A8C 674 L		0	11,1 - 11,2
AUC 074 E		0,36	11,9 - 12,0
		0,2	11,1 - 11,3
		,	_

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VAU 5,4 a 1

1. Edition

PES 6 A 95 D 320 RS 2646 Komb.-Nr. 0 400 846 533

RQV 300-1300 AB 1163-1 R

supersedes

companyauxhall angine 330 T/C

Parchiso 411

All test specifications are valid for Bosch Fuel Injection Pump Tost Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke	(2_45=2_65)	mm (from BDC)								
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6					
810	9,7-9,8	6,4-6,6	0,35(0,6)								
300	5,9-6,1	0,8-1,4	0,35(0,5)								

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated: Degree of disflection of control levar	rev/min Control rod trave	Travel 🔾	Intermediate Degree of deflection of control lever	•	Control rod travel	Lower and Degree of deflection of control lever 7	speed rev/min 8	Control rod travel		mm
max. ca. 61	8,7	15,2-17,8 1350-1360 1455-1485 0-1,0	•	•		ca. 17 350-490 ③	100 300		500	0,9-1,1 8,1-3,5 6,7-5,8 8,0

Torque control travel a

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed 2b limitation intermediate speed	Fuel deli- high idle s	rery characteristics (Se peed (Se)	idle	fuel delivery 6	Torque-control 5 travel Control roc	
rev#min 1	cm ³ /1000 strokes	rev/min 49	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	rev/min	travel mm
810	63,5-65,5 (61,5-67,5)	1350-1360*	1200 500	71,5-74,5 (69,5-76,5) 52,0-55,0 (50,0-57,0)	100	86,5-96,5 (83,5-99,5) = 19,5-21,0 mm RW	-	•

Checking values in brackets

* 1 mm less control rod travel then col. 2

9.84

G11

BOSCH

Jeschäftsbereich IVI. Kundendienel. Kiz-Austrietung. E by Robert Bosch GmbH, D-7 Stuttgert 1. Postfach 50. Printed in the Federal Republic of Germany. mprime en Republique Federale d'Allemagne per Robert Bosch GmbM.

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 MAN 11.4 h

1. Edition

PES 6 A 95 D 410 LS 2669 Komb.-Nr. 0 400 846 523

RO 750 AB 1172 L

supersedes MAN

D 2566 ME 114 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

mm (from BDCTv1. 6: RW=9.0-12.0 mm

_		1,43-1,037		, ,	7	
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,1+0,1	11,8-12,0	0,35(0,6)			
250	5,9-6,1	0,9-1,5	0,35(0,5)			
				i		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking PRG che		1	Full-load: Setting po		-	cifications (4)	idle spec	_		cifications 5	Torque	control 3
rev/min 1	Control rod travel mm 2)	rev/min 3	Central red travel rmm 4	Centrel red travel rnm 5	rev/min 6	rev/min 7	Central red travel mm 8	İ	Control rod	rev/min	Control rod — travel
-	-		-	6		750-755 775-785	-	•	-	-	-	-
orque-co	ontrol travel			-					750-7	55 min 1		1 mm less contr

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F)	Control red stop 3a	Fuel deliv	ery characteristics	Starting Idle spe	fuel delivery 6
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes	rev/min	red stand cm ³ /1000 strokes:/ mm
700	118,0-120,0 (116,0-122,0)	-	-	-	-	-
*						

Checking values in brackets

9.84

G12

0

20 4

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 KHD 8,0 o

1. Edition

PES 5 A 95 D 410 RS 2680 Komb - Nr. 0 400 845 080

ROV 300-1150 AB 1088-1 L

supersades comparKHD

engine F 5 L 413 FRW 85 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed	Control red trevel mm	Fuel delivery cm ³ /100 strokes	Difference cm³/ 100 strokes	Control rod travel	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve)
1150	9,0-9,1	7,2-7,4	0,35(0,6)	2	3	6
300	5,4-6,6		0,35(0,55			1

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated	peed			Intermediate	rated sp	eed		Lower rated	speed			Cliding	Sliding sleeve travel	
Degree of deflection of control laver	rev/min Controi rod travel mm 2	Control rod travel mm rev/min 3	(a)	Degree of deflection of control lever	rev/min 5	Control trave!	rod ①	Degree of deflection of control lever 7	rev/min 8	Control of travel mm		rev/min	mm	
max. ca. 58	8,0	15,2-17, 1190-120 1235-126 0-1,0	00	•	-	-		ca. 12 315-425 ③	300	min.8 6,4-6	,6		0,5-0,8 2,9-3,1 4,7-5,0 7,9	

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter		intermediate speed	high idle s	very characteristics (5a)	Starting idle switchin	. •	Torque travel	Control rod
rev/min 1	cm³/1000 strokes . 2	rev/min 49	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes	rev/min	travel mm
1150	72,0-74,0 (70,0-76,0)	1190-1200*	600 650 #*	80,5-83,5 (78,0-86,0) 98,5-101,5 (96,0-104,0)	100	115,0-125,0 (112,0-128,0) = 14,0-14,6 mm RW	500	9,0-9, 10,4+0, 10,0+0, 9,2-9,

Checking values in brackets

* 1 mm less control rod travel than col. 2

^{**} Adjusted with the full-load stop unblocked. Solenoid switched off.

Testoil-ISO 4113

ROV 300-1150 AB 1088-1 L

company: KHD

F 6 L 413 FRW

102 kW

Tunnelling or mining vehicles

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke (1,45-1,65)	mm (from BDC)	mm (from BDC)					
Rotational speed rev/min	Control rad travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6			
1150	9,0-9,1	7,9-8,1	0,35(0,6)						
300	6,4-6,6	1,3-1,7	0,35(0,55)						

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated s	opper rated speed			Intermediate rated speed			speed	Sliding sleeve travel		
deflection	rev/min Control	Control rod travel	Degree of deflection		Control rodi travel	Degree of deflection		Control rod travel		0
	rod travel mm	mm rev/min 2s	of control	rev/min	mm (4)	of control lever	rev/min	mm ③	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1200	15,2-17,8	-	-	-	ca.12	100 300	min.8,0 6,4-6,6	250 550	0,5-0,8 2,9-3,2
ca.58	8,0	1190-1200					300	10,4-0,0	850	4,7-5,0
	4,0	1230-1260					Ì		1150	7,9
1	1350	0-1,0			l	310-450				
						<u>3</u> a				

0,7 mm Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-rea Test oil ten		limitation intermediate speed	high idle s	very characteristics (5e)	Starting Idle switching	_	Torque- travel	Control rod
rev/min	cm³/1000 strokes	rev/min 44)	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	
1	2	3	4	5	6	7	8	9
1150	79,0-81,0 (77,0-83,0)	1190~1200*	650	80,5-83,5 (78,0-86,0)	100	120,0-130,0 (117,0-133,0	650 800	9,0-9,1 9,7-9,8 9,5-9,7 9,0-9,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (A) and Governors

WPP 001/4 LIE 5,6 a

1. Edition

PES 4 A 95 D 410 RS 2685

Komb.-Nr. 0 400 874 238

RSV 400-1000 A 1 C 2187 L

supersedes Liebherr D 904 NA 70 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,7-2,8 (2,65-2,85)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm*/100 strokes 3	Difference cm ^{-/} / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm*/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9,7-9,8	7,9-8,1	0,35(0,6)			
400	6,1-6,3	1,0-1,6	0,35(0,55	•		

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Uppe Degree of	r rated speed Control rod	Control rod	Intermed	diate rated	speed	4 Control-		rated speed Control rod	3 to	rque control Control rod
deflection of control	travel mm	trävel mm rev/min				lever deflection	rev/min	travel mm	rev/min	travet mm
lever 1	2	3	4	5	6	in degrees 7	8	9	10	11
oose	800	0,3-0,7	-	-	-	ca. 23	400	5,7	1000	9,7-9,8
	x =	2,5					400	6,1-6,3	550	
ca. 50	8,7	1040-1050					455-5	5=2,0	430	10,9-11,5
(28)	4,0	1065-1095								
	1230	0,3-1,4								• ,

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

Pull-load stop Test oil temp 40° C (104°F)			Speed mindal Characteristics			luel delivery 5	42 Id	4a Idle stop	
rev/min 1	cm ¹ /1000 strokes	Note changed to) rev/min	rev/min	cm ¹ /1000 strokes 5	rev/min	cm v1000 strokes 7	rev/min 8	Control root travel mm	
1000	79,0-81,0 (77,0-83,0)	1040-1050*	600	66,5-69,5 (64,0-72,0)	100	125,0-135 (122,0-138 =15,5-15,7 mm RW	,0)	-	

Checking values in brackets

* 1 mm less control rod travel than col 2



615

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 2,2 d

2. Edition

En

estoil-180

PES 4 M 55 C 320 RS 152-1 RSF 375/2250 M 56

Komb.Nr. 0 400 074 96 3/

Sales model

0 400 074 962

supersedes 4.84

Daimler-Benz company

OM 601

54 kW

U.S.A.

0-90-180-270 All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Note: Before starting testing, observe the e important instructions on the reverse.

Control rod travel

Port closing at prestroke

1-3-4-2

2,00-2,10 (1.95-2.15)

RW = 20.0-22.0 mm

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (compensating valve)
rev/min	mm 2	cm ⁴ /100 strokes	cm ¹ /100 strokes 4	mm 2	cm ¹ /100 strokes 3	mm 6
1000	13,1+0,	3,4-3,5	0,25(0,3)			
375 1800 2200	6,4-6,6	0,5-0,6	0,10(0,15 0,25(0,3) 0,25(0,3)			

Set uniform delivery according to the values in

Checking values in brackets

B. Governor Settings

Lower rated spe	eed		Upper rated spo	eed		Variations in control rod travel			
	Control rod travel	Rotational speed		Control rod travel	Rotational speed		Rotalional speed	Control rod travel	
lever	mm	rev/min		mm	ten/wiu		rev/min	mm	
1	2	3	4	5	6	7	8	9	
8-12° () (2) (3) (4) (5)	6,4-6,6 ** -	250 375 400 630-730	<u> </u>	12,3-12 8,8-9,2 - 0-1,0		(2) (3) (6)	100 1800 1000 Switching po	min. 20,6 12,7-12,9 13,1-13,2	

C. Settings for Fuel Injection Pump with Governor Mounted

Full-load d	elivery (19) np 40°C (104°F)	Full-load speed (8a) regulation	Variations delivery	in fuel (17)		uel delivery	Difference
rev/min 1	cm³/1000 strakes	rev/min 3	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes 7	cm ¹ /1000 strokes 8
2200	36,0-38,0 (35,0-39,0)	2500* მ,8-9,2	1800 1000	36,0-37,5 (35,0-38,5) 34,0-35,0 (33,0-36,0)	100 375 2500	5,0-6,0 (4,5-9,0) 21,0-25,0	6,0 (2a) 1,0 (1,5) (5) 2,5 sieht (3,0) Pkt. (6) 8 a

Checking values in brackets

Ca . 1 mgm less control rod travel than in Column 2

6.84

BOSCH

G16

- 1. ** Adjust the idle speed auxiliary spring at N = 400 min⁻¹in such a way that the control-rod travel is overpressed by 0.1 0.2 mm.
- 2. Adjusting the idle control lever position

 At 1000 min⁻¹, control-rod travel 1.9 2.0 mm.
- 3. Checking the idle speed auxiliary spring cut-off

Control lever position 46°. After the switchoff point (from the starting curve) up to 1000 min⁻¹, no change in control-rod travel. Control lever position 30°. Rotational speed range 600-800 min⁻¹, control-rod travel 10.0 mm.

4. Checking the pneumatic shut-off unit

Control lever at idle stop.

 $n = 375 \text{ min}^{-1}$ and pu = 450 mbar (vacuum) (338 mm Hg), the control-rod must move quickly to control-rod travel = 0 mm.

- 5. Overflow valve 1 469 990 351
- 6. * Offsetting (difference) of start of fuel delivery between the maximum/minimum value 1° camshaft.
- 7. Adjust idle on the pneumatic idle speed boost box. In so doing release the lock nut.
- 8. Adjusting the pneumatic idle speed boost (PLA):

At 0.4 bar vacuum, $n = 425 \text{ min}^{-1}$, control-rod travel 8.0 - 9.6 mm (11-19 ccm/1000 strokes).

9. <u>Checking for leaks (checking vacuum) in the PLA box</u>

Trigger the PLA box with 0.8 bar vacuum via the three-way valve and pressure gauge. Using the 3-way valve, cut off the vacuum supply from the PLA and pressure gauge. Allowable pressure drop 30 mbar in 15 s.

10. FBG Adjustment

FBG adjustment and interlocking according to the average value for start of delivery from all cylinders, 19.5 \pm 0.2 (0.3) ° camshaft after cyl. 1.

11. Checking the regulator using the altitude-pressure compensator aneroid box

Rotational speed	Pressure (absolute)	Control deviation from
(min ⁻¹)	(mbar)	max. Control-rod travel (mm)
1 000	840	1.0 - 1.2 (0.95 - 1.25)
1 000	930	0.0 - 0.4 (0.0 - 0.45)
1 000	700	2.1 - 2.5 (2.05 - 2.55)

12. Pin projection = 16.55 + 0.55 mm

40

WPP 00 1/4 MB 3,0 m

Edition

PES 5 MW 55/320 RS 16 RW 375/2200 MW 28-1 0 403 245 013 0 403 245 014 - Sales model

supersedes 11.82
company Daimler Benz

Note: Before starting testing, observe the important instructions on the reverse.

All test specifications are valid for coscilification pump lest benches and Testers

A. Fuel Injection Pump Settings

Oart closing at prestroke

2,10-2,20

mm (from BDC)

Control rod travel

ohne ALDA	(2	,05-2,25)		19,5-22,	5	
Rotational speed	Control rod travet	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (compensating valve)
rev/min	mm	cm 1/100 strokes	cm ¹ /100 strokes	mm	cm 1/100 strokes	mm
1	2	3	4	2	3	6
1000	13,5+0,	5,15 - 5,25	0,25(0,3)			
365	5,7-5,8	1,0-1,1	0,10(0,15)			
1600			0,25(0,3)	•		
2180			0,25(0,3)			
	1	1	1			1

Checking values in brackets

B. Governor Settings

ohne ALDA

Lower rated s	peed		Upper rated sp	eed		Variations in control rod travel			
Degree of deflection of control	Control rod travel	Rotational speed	Degree of deflection of control	Control rod travel	Rotational speed	·	Rotational speed	Control rod travel	
lever	mm	rev/min	lever	mm	rev/min		rev/min	mm	
1	2	3	4	5	6	7	8	9	
27-31	min.11 max.11	100 320	69 (8)	12,1-12	3 2180	(12) (13)	100	20,5-21,5	
3	5,7-5,8	365	9	11,2	2300-2320	(14)	1600	13,1-13,3	
	-	-	<u> </u>	4,0	2620-2720		1000 Switching po	13,5-13,6	
(5)	-	•	·	0,0-1,0	2950	. 6		(240-330)	

C. Settings for Fuel Injection Pump with Governor Mounted

ohne ALDA

Full-load	delivery (19)	Full-load speed 8a regulation	Variations delivery	in fuel (17)	Starting (uel delivery	Continue of State or country as a sure of the
rest oil te	emp 40°C (104°F)			1 (8)		1	Difference
rev/min	cm 1/1000 strokes	rev/min	rev/min	cm ¹ /1000 strokes	rev/min	cm 1/1000 strokes	cm 1/1000 strokes
1	2	3	4	5	6	7 8	8
2180	50,0-52,0 (49,0-53,0)	2300-2320* (2290-2330)	1600	51,5-53,0 (50,5-54,0)	100	min. 55,0 (52,0)	6,0
			1000	51,5-52,5 (50,5-53,5)	365	10,0-11,0 (8,5-12,5)	1,0
						(5,5-9,5)++	(1,5)
					2550	24,0-30,0 (23,0-31,0)	2,5 (6 (3,0)

Checking values in brackets

* 1 mm less control rod travel than in Column 2

8.84

G18

BOSCH

Geschaftsbereich KH. Kundendienst. Kfz-Auszustung.

1980 by Robert Bosch GmbH. Postfach 50. D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprimé en République Fedérale d'Allemagne par Robert Bosch GmbH.

Testing with ALDA

Point	min-1	cm ³ /1000 strokes	Control-rod trave	1	Press	ure (absolute)
18	1000	51,5-52,5 (50,5-53,5)	13,5 - 13,6	1733	mbar	(1300) mmHg)
18a	*** 1000	41,0-43,0		1067	mban	/ and) mmHg)
		(40,0-44,0		1007	mbar	(000	
19	2180	50,0-52,0	12,1 - 12,3	1733	mbar	(1300) menilg)
		(49,0-53,0)			~~~		
12a	100	min. 55	20,5 - 21,5	1733	mbar	(1300	mmHg)
15	365	10,0-11,0 (8,5-12,5)	5,7 - 5,8	986	mbar	(740) mmHg)

1. Setting the idle stage

Text replaces Section 4.1 of Test Instructions VDT-W-420/300 En Supplement 2, 2. Edition.

Set control lever at advance angle 69° . Drive injection pump at $1000~\text{min}^{-1}$. Screw the spring retainer in until control-rod travel 13.5-13.6~mm is reached.

Set control lever at advance angle 49°. Drive injection pump at 1000 min⁻¹. Control-rod travel 8.8 - 9.5 mm must be reached.

2. Setting the lower rated speed

Text replaces Section 4.3 of Test Instructions VDT-W-420/300 En Supplement 2, 2 Edition.

Drive injection pump at $n = 800 \text{ min}^{-1}$. Move the control lever back until control-rod travel 1.0 - 1.3 mm is reached.

The resulting control lever deflection must lie within the permissible limits. Fix the control lever in this position. Drive the injection pump at speed as per point 2, Section B of the Test Specification Sheet. Set the control-rod travel at adjusting screw (28).

3. Setting the idle auxiliary spring (70)

** Set the idle auxiliary spring so that it just touches at n = 520 - 550 min at the end of the characteristic curve.

4. Setting the sensing lever

Move the control lever to the full-load stop. Drive the injection pump at $n = 375 \text{ min}^{-1}$. Set the sensing lever so that the control-rod travel lies 0.1 (0.1 - 0.2) mm over full-load control-rod travel at $n = 1000 \text{ min}^{-1}$.

- 5. *** Correction of the injected fuel quantity at the correction screw of the ALDA aneroid box. Max. correction \pm 0.75 mm controlrod travel.
- 6. Pin projection = 16.65 ± 0.1 mm.
- 7. Stop check: Drive the injection pump at n = 200 min⁻¹. Overbridge the elastic idle stop. The resulting control-rod travel may be at most 5 mm.
- 8. Check the pneumatic shutoff: Control lever in idle position.

 Drive the injection pump at n = 375 min⁻¹. At Pu = 450 bar

 (338 mmHg) (vacuum) control rod must return quickly to controlrod travel 0 mm.
- 9. Range of adjustment idle full load = 38 42°.
- 10. ** Idle checking point.

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 3.0 t

2. Edition

PES 5 MW 55/320 RS 16

RW 375/2200 MW 28-3

supersedes 2.83

0 403 245 020

0 403 245 021 - Sales model

company Daimler-Benz OM 617 A-USA engine

92 kW (125 PS)

Note: Before starting testing, observe the important instructions on the reverse.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Start-of-delivery adjustment and blocking 19.5° after start-of-

delivery cylinder 1.

A. Fuel Injection Pump Settings

Port closing at prestroke

2,10-2,20 (2.05-2.25)

mm (from BDC)

Control rod travel

ohne ALDA

19,5-22,5

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (compensating valve)
rev/min	'nт	cm ¹ /100 strokes	cm 1/100 strokes	mm	cm ⁴ /100 strokes	mm
1	2	3	4	2	3	6
1000	13,5+0,	5,15-5,25	0,25(0,3)			
365	5,7-5,8	1,0-1,1	0,1 (0,15)			
1600			0,25(0,3)			
2180			0,25(0,3)			
					1	

Set uniform delivery according to the values in [_____]

Checking values in brackets

B. Governor Settings

ohne ALDA

Lower rated sp	wer rated speed			eed		Variations in control rod travel			
Degree of deflection of control	Control rod travel	Rotational speed		Control rod travel	Rotational speed		Rotational speed	Control rod travel	
lever	mm	rev/min	lever	mm	tenium		rev/min	mm	
1	2	3	4	5	6	7	8	9	
27-31(1)	min.11	100	69 7	12,1-12	,3 2180	(12)	100	20,5-21,5	
2	max.11 5,7-5,8	320 365	③	11,2	2300-2320	(3)	1600	13,1-13,3	
(3)	**	•	9	4,0 0,0-1,0	2620-2720 2950	(14)	1000	13,5-13,6	
5	-	•	0	-	-	6	Switching po 260-310	(240-330)	

C. Settings for Fuel Injection Pump with Governor Mounted

ohne ALDA

Full-load d		Fult-load speed (8a) regulation	Variations delivery	. ~	Starting fi	uel delivery	Difference
rev/min	np 40 C (104 F)	rev/miñ	rev/min	(18) cm '/1000 strokes	rev/min	cm '/1000 strokes	cm ¹ /1000 strokes
1	2	3	4	5	6	7	8
2180	50,0-52,0 (49,0-53,0)	2300-2320* (2290-2330)	1600 1000	51,5-53,0 (50,5-54,0) 51,5-52,5 (50,5-53,5)	365 3 7 5	min. 55,0 (52,0) 10,0-11,0 (8,5-12,5) (5,5-9,5)++ 24,0-30,0 (23,0-31,0)	6,0 (2a) 1,0 (1,5) (5) (1,5) (5) 2,5 (3,0) (6)

Checking values in brackets

* 1 mm less control rod travel than in Column 2

Testing with ALDA

Point	min ⁻¹	cm³/1000 strokes	Control-rod travel	Pressure (absolute)
18	1000	51,5-52,5	13,5 - 13,6 17	33 mbar (1300 mmHg)
	_	(50,5-53,5)		

18a	1000	41,0-43,0	- 10	167 mbar (800 mmHg)
		(40,0-44,0		, , , , , , , , , , , , , , , , , , , ,
19	2180	50,0-52,0	12,1 - 12,3 17	'33 mbar (1300 mmHg)
		(49,0-53,0)		
12a	100	min. 55	20,5 - 21,5 17	/33 mbar (1300 mmHg)
15	365	10,0-11,0 (8,5-12,5)	5,7 - 5,8	986 mbar (740 mmHg)

1. Setting the idle stage

Text replaces Section 4.1 of Test Instructions VDT-W-420/300 En Supplement 2, 2. Edition.

Set control lever at advance angle 69°. Drive injection pump at 1000 min⁻¹. Screw the spring retainer in until control-rod travel 13.5 - 13.6 mm is reached.

Set control lever at advance angle 49°. Drive injection pump at 1000 min⁻¹. Control-rod travel 8.8 - 9.5 mm must be reached.

2. Setting the lower rated speed

Text replaces Section 4.3 of Test Instructions VDT-W-420/300 En Supplement 2, 2 Edition.

Drive injection pump at $n = 800 \text{ min}^{-1}$. Move the control lever back until control-rod travel 1.0 - 1.3 mm is reached.

The resulting control lever deflection must lie within the permissible limits. Fix the control lever in this position. Drive the injection pump at speed as per point 2, Section B of the Test Specification Sheet. Set the control-rod travel at adjusting screw (28).

3. Setting the idle auxiliary spring (70)

** Set the idle auxiliary spring so that it just touches at n = 520 - 550 min⁻¹ at the end of the characteristic curve.

4. Setting the sensing lever

Move the control lever to the full-load stop. Drive the injection pump at n = 375 min $^{-1}$. Set the sensing lever so that the control-rod travel lies 0.1 (0.1 - 0.2) mm over full-load control-rod travel at n = 1000 min $^{-1}$.

- 5. *** Correction of the injected fuel quantity at the correction screw of the ALDA aneroid box. Max. correction \pm 0.75 mm controlrod travel.
- 6. Pin projection = 16.65 ± 0.1 mm.
- 7. Stop check: Drive the injection pump at $n=200 \, \text{min}^{-1}$. Overbridge the elastic idle stop. The resulting control-rod travel may be at most 5 mm.
- 8. Check the pneumatic shutoff: Control lever in idle position. Drive the injection pump at n = 375 min⁻¹. At Pu = 450 bar (338 mmHg) (vacuum) control rod must return quickly to control-rod travel 0 mm.
- 9. Range of adjustment idle full load = 38 42°.
- 10. ** Idle checking point.

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4

2. Edition

PES 6 A 100 D 410 RS 3020

EP/RSV 400-1100 A 7 B 700 L

supersed 10.74 company John Deere engine 6404 A

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,0+0,1

mm (from BDC);

Port closing mark 14°

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ¹ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	7,5 - 8,3				
	6 12	3,2 - 4,2 12,4 - 13,4				
200	9	4,0 - 5,2	İ	1	İ	

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

1	rated speed		Intermediate	e rated spe	ed	(4) Lowe	r rated sp	eed	(3) To	rque control
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
ca. 66	1100 1120	12,0 6,2	vithout	auxol	iary sprin	ca. 26	400 150	6,3 19 - 21	1080	0
(5)	1100 1140 1240	11,5-12,5 2,0- 5,0 0,3- 1,0					400 430 500	6,0-6,6 3,0-4,6 0 - 1	-	-

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	load stop	6 Rotational- speed limitat.		el delivery Bracteristics	Starting	fuel delivery	Sa) Idi	le stop
Test oil ten rev/min 1	np. 40°C (104°F) cm³/1000 strokes 2	Note: changed to rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes 7	rev/min 8	Control rod travel mm
1080	107,5-109,5	1110-1120+			100	15,6-17,6	400 cm ³	11,5-15, / 1000
			1150	11,5 - 21,5				

Checking values in brackets

* 1 mm less control rod travel then col. 2

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MB 3,0 t 1 2. Edition

Eπ

PES 5 MW 55/320 RS 16

RW 375/2200 MW 29-1

supersede.82

0 403 245 022

0 403 245 023 - Sales model

company Daimler-Benz engine OM 617A-USA 92 kW (125 PS)

Note: Before starting testing, observe the important instructions on the reverse.

All test specifications are valid for Bosch Fuel Injection Pump Test Beriches and Testers

Start-of-delivery adjustment and blocking 19.5° after start-of-

delivery cylinder 1.

A. Fuel Injection Pump Settings

Port closing at prestroke

2,10-2,20 (2,05-2,25)

mm (from BDC)

Control rod travel

ohne ALDA

19,5-22,5

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rnd travel	Fuel delivery	Spring pre tensioning (compensating valve)
rev/min	mm	cm ⁻ /100 strokes	cm 1/100 strokes	mm	cm ⁴ /100 strokes	mm
1	2	3	4	2	3	6
1000	13,5+0	,1 5,15-5,25	0,25(0,3)			
365 1600 2180	5,7-5,	1,0-1,1	0,1 (0,15) 0,25(0,3) 0,25(0,3)			
	1			<u> </u>	1	

Set uniform delivery according to the values in [[]___ 1__]]

Checking values in brackets

B. Governor Settings

			-				ohne A	LDA		
Lower rated sp	eed		Upper rate	d speed		Variations	Variations in control rod travel			
Degree of deflection of control	Control rod travel	Rotational speed	Degree of deflection of control	Contro	Frod Rotational spe	eed	Rotational speed	Control rod travel		
lever	mm	rev/min	lever	min	rev/min	Ī	rev-min	mm		
1	2	3	4	5	6	7	8	9		
27-31 ① 2 3 4 5	min.11 max.11 5,7-5,8	100 320 365 =	69	(8) 11, (9) 4,		20	100 13 600 14 000 Switching p	min. 55 13,1-13,3 13,5-13,6 ount 40-330)		

C. Settings for Fuel Injection Pump with Governor Mounted ohne ALDA

Full load d	lelivery (19)	Full-load speed (8a)	Variations delivery	in fuel (17)	Starting (uel delivery		·
Test oil ten	mp 40 C (104 F)			📵			Difference	
rev/min	cm ¹ /1000 strokes	rev/min	rev/min	cm ¹ /1000 strokes	rev/min	cm 1/1000 strokes	cm 1/1000 strok	es
1	2	3	4	5	6	7	8	·······
2180	50,0-52,0 (49,0-53,0)	2300-2320* (2290-2330)	1600 1000	51,5-53,0 (50,5-54,0) 51,5-52,5 (50,5-53,5)	100 365 375 2550	min. 55,0 10,0-11,0 (8,5-12,5) (5,5-9,5)++ 24,0-30,0 (23,0-31,0)	6,0 1,0 (1,5) (1,5) 2,5 (3,0)	(12a) (15) (16)

Checking values in brackets

* 1 mm less control rod travel than in Column 2

6.84

BOSCH

Testing with ALDA

min ⁻¹	cm³/1000 strokes	Control-rod tra	ve1	Pressu	ure (a	bsolute
1000	51,5-52,5	13,5 - 13,6	1733	mbar	(1300	mmHg)
	(50,5-53,5)					
	41.0-43.0					
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	(40,0-44,0	•	1067	mbar	(800	mmHg)
2180	50,0-52,0	12,1 = 12,3	1733	mbar	(1300	mmHg)
	(49,0-53,0)					
100	min. 55	20,5 - 21,5	1733	mbar	(1300	mmHg)
365	10,0-11,0 (8,5-12,5)	5,7 - 5,8	986	mbar	(740	mmHg)
	1000 *** 1000 2180	1000 51,5-52,5 (50,5-53,5) *** 1000 41,0-43,0 (40,0-44,0 2180 50,0-52,0 (49,0-53,0) 100 min. 55	1000 51,5-52,5 13,5 - 13,6 (50,5-53,5) *** 1000 41,0-43,0 (40,0-44,0 2180 50,0-52,0 12,1 = 12,3 (49,0-53,0) 100 min. 55 20,5 - 21,5 365 10,0-11,0 5,7 - 5,8	1000 51,5-52,5 13,5 - 13,6 1733 (50,5-53,5) *** 1000 41,0-43,0 1067 (40,0-44,0 2180 50,0-52,0 12,1 = 12,3 1733 (49,0-53,0) 100 min. 55 20,5 - 21,5 1733	1000 51,5-52,5 13,5 - 13,6 1733 mbar (50,5-53,5) *** 1000 41,0-43,0 - 1067 mbar (40,0-44,0) 2180 50,0-52,0 12,1 - 12,3 1733 mbar (49,0-53,0) 100 min. 55 20,5 - 21,5 1733 mbar 365 10,0-11,0 5,7 - 5,8 986 mbar	1000 51,5-52,5 13,5 - 13,6 1733 mbar (1300 (50,5-53,5) *** 1000 41,0-43,0 - 1067 mbar (800 (40,0-44,0) 2180 50,0-52,0 12,1 - 12,3 1733 mbar (1300 (49,0-53,0) 100 min. 55 20,5 - 21,5 1733 mbar (1300 365 10,0-11,0 5,7 - 5,8 986 mbar (740

1. Setting the idle stage

Text replaces Section 4.1 of Test Instructions VDT-W-420/300 En Supplement 2, 2. Edition.

Set control lever at advance angle 69° . Drive injection pump at $1000~\text{min}^{-1}$. Screw the spring retainer in until control-rod travel 13.5-13.6~mm is reached.

Set control lever at advance angle 49°. Drive injection pump at 1000 min⁻¹. Control-rod travel 8.8 - 9.5 mm must be reached.

2. Setting the lower rated speed

Text replaces Section 4.3 of Test Instructions VDT-W-420/300 En Supplement 2, 2 Edition.

Drive injection pump at $n = 800 \text{ min}^{-1}$. Move the control lever back until control-rod travel 1.0 - 1.3 mm is reached.

The resulting control lever deflection must lie within the permissible limits. Fix the control lever in this position. Drive the injection pump at speed as per point 2, Section B of the Test Specification Sheet. Set the control-rod travel at adjusting screw (28).

3. Setting the idle auxiliary spring (70)

** Set the idle auxiliary spring so that it just touches at n = 520 - 550 min⁻¹ at the end of the characteristic curve.

4. Setting the sensing lever

Move the control lever to the full-load stop. Drive the injection pump at $n=375\,\mathrm{min}^{-1}$. Set the sensing lever so that the control-rod travel lies 0.1 (0.1 - 0.2) mm over full-load control-rod travel at $n=1000\,\mathrm{min}^{-1}$.

- 5. *** Correction of the injected fuel quantity at the correction screw of the ALDA aneroid box. Max. correction \pm 0.75 mm centrol-rod travel.
- 6. Pin projection = 16.65 ± 0.1 mm.
- 7. Stop check: Drive the injection pump at $n = 200 \text{ min}^{-1}$. Overbridge the elastic idle stop. The resulting control-rod travel may be at most 5 mm.
- 8. Check the pneumatic shutoff: Control lever in idle position. Drive the injection pump at $n=375~\text{min}^{-1}$. At Pu = 450 bar (338 mmHg) (vacuum) control rod must return quickly to control-rod travel 0 mm.
- 9. Range of adjustment idle full load = 38 42°.
- 10. ** Idle checking point.

Test Specifications Fuel Injection Pumps (A) and Governors

WPP 001/4 VOL 4.5 a

2. Edition

PES 4 MW 100/320 RS 1102 RSV 300-1000 MW 1 A 315

0 403 474 001

supersed 7s. 84 company TD 45 engine 84 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 2,80-2,90 Port closing at prestroke (2,75-2,95) mm

mm (from BDCbei RW = 9.0-12.0 mm

En

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm //100 strokes	cm ^{-/} 100 strokes 4	mm 2	cm ¹ /100 strokes	mm 6
700*	12,1+0,1	11,3-11,5	,35(0,6)			
300	5,6-5,7	1,3-1,7	0,35(0,55)			
1000	12,1+0,1		0,55(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	r rated speed Control rod travel mm	rev/min Control rod travel mm rev/min	Interme	diate rated	speed	Control lever deliection in degrees 7		rated speed Control rod travel mm	3 to	rque control Control rod travel mm
loose	800	0,3-1,0		<u> </u>		ca. 12	300	5,1-5,2		
							300 360-420=	5,6-5,7		
ca. 52 23	11,1 4,0 0,3-1,7	1040-1050 1055-1085 1200					JUJ 420-			

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop	Rotational- speed limitat		uel delivery paracteristics	Starting fi	uel delivery 5	43 ldl	e stop
rev/min	emp 40°C (104°F) cm*/1000 strokes 2	Note changed to) rev/min 3	rev/min	cm ¹ /1000 strokes 5	rev/min 6	cm ¹ /1000 strokes	rev/min B	Control rod travel mm 9
700	113,0-115,0 (111,0-117,0)	1040-1050*	1000	112,0-116,0 (110,0-118,0)	300	13,0-17,0 (10,5-19,5)	300	5,6-5,7
n = 1	e minimum full- 000 min/1. At t ding to test sp	he maximum 1	u11-1	control-rod trav pad stop, make 1	el of he fu	12.6-12.7 -load adj	mm wit ustmer	h t

Checking values in brackets

* 1 mm less control rod travel than cot 2



Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 3,0 t 2 2 Edition

estoil-ISO 4113

PES 5 MW 55/320 RS 16-1 RW 375/2200 MW 28-3 0 403 245 025

supersed 8.84

companDaimler-Benz engine OH 617 A-USA 92 kW (125=PS)

0 403 245 026- Sales model

Note: Before starting testing, observe the important instructions on the reverse.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers Start-of-delivery adjustment and A. Fuel Injection Pump Settings

blocking 19.5° after start-ofdelivery cylinder 1.

Port closing at prestroke

2,10-2,20 (2.05-2.25)

mm (from BDC)

19.5-22.5 Control rod travel

ohne ALDA

Rotational speed	Control red travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (compensating valve)
rev/min	mm	cm ² /100 strokes	cm 1/100 strokes	mm	cm 1/100 strokes	mm
1	2	3	4	2	3	6
1000	13,5+0,	5,15-5,25	0,25 (0,3)			
365	5,7-5,8	1,0-1,1	0,1 (0,15)			
1600			0,25 (0,3)			
2180			0,25 (0,3)			
	L					

Set uniform delivery according to the values in [______

Checking values in brackets

B. Governor Settings

ohne ALDA

Lower rated spe	ed		Upper rated sp	eed		Variations in control rod travel			
	Control rod travel			Control rod travel	Rotational speed		Rotational speed	Control rod travel	
lever	mm	rev/min	lever	mm	rev/min		rev/min	mm	
1	2	3	4	5	6	7	8	9	
<u>න</u>	min.11 max.11 5,7-5,8 **	100 320 365 -	69 (7) (8) (9) (1)		2300-2320 2620-2720	(B) (B) (C)	1000	20,5-21,5 13,1-13,3 13,5-13,6 (240-330)	

C. Settings for Fuel Injection Pump with Governor Mounted

ohne ALDA

Full-load o	delivery (19)	Full-load speed 8a	Variations delivery	in fuel (17)	Starting f	uel delivery		
Test oil te	mp 40°C (104°F)			(8)		I	Difference	
rev/min	cm 1/1000 strokes	rev/min	rev/min	cm 1/1000 strokes	rev/min	cm ¹ /1000 strokes	cm ³ /1000 strol	kes
1	2	3	4	5	6	7	8	
2180	50,0-52,0 (49,0-53,0)	2300-2320* (2290-2330)	1600	51,5-53,0 (50,5-54,0)	100	min. 55,0 (52,0)	6,0	(23)
			1000	51,5-52,5 (50,5-53,5)	365	10,0-11,0 (8,5-12,5)	1,0	(15)
					375 2550	(5,5=9,5)++ 24,0=30,0 (23,0=31,0)	(1,5) 2,5 (3,0)	(16)

Checking values in brackets

* 1 mm less control rod travel than in Column 2

Testing with ALDA

Point	min ⁻¹	$cm^3/1000 H$	RW	Pressure (absolute)
18	1000	51,5 - 52,5 (50,5 - 53,5)	13,5 - 13,6	1733 mbar(1300 mmHg)
18a	*** 1000	41,0 - 43,0 (40,0 - 44,0)	•	1067 mbar(800 mmHg)
19	2180	50,0 - 52,0 (49,0 - 53,0)	12,1 - 12,3	1733 mbar (1300 mmHg)
12a	100	min. 55	20,5 - 21,5	1733 mbar (1300 mmHg)
15	365	10,0 - 11,0 (8,5 - 12,5)	5,7 - 5,8	986 mbar (740 mmHg)

1. Adjusting the idle

Test supersedes Section 4.1 of test instructions VDT-W-420/300 Suppl. 2, Ed. 2.

Set the control lever to an angle of 69° . Operate the fuel-injection pump at 1000 min⁻¹.

Screw in the spring retainer until a control-rod travel of 13,5 - 13,6 mm is reached.

Set the control lever to an angle of 49° . Operate the fuel-injection pump at 1000 min⁻¹. Control-rod travel 8,8 - 9,5 must be reached.

2. Adjusting the lower rated speed

Text supersedes Section 4.3 of test instructions VDT-W 420/300 Suppl. 2, Ed. 2.

Operate the fuel-injection pump at $n = 800 \text{ min}^{-1}$. Take back the control lever until a control-rod travel of 1.0 - 1.3 mm is reached.

The resulting deflection of the control lever must be within the allowable tolerance. Fix the control lever in this position. Drive the fuel-injection pump at a speed according to Point 2 Section B of the test specification sheet. Set regulation at adjusting screw (28).

3. Adjusting the idle-speed auxiliary spring (70)

** Position the idle-speed auxiliary spring in contact as the characteristic curve levels off at n=520-550 min⁻¹.

4. Adjusting the sensing lever

Place the control lever against the full-load stop. Operate the fuel-injection pump at $n=375\,\mathrm{min}^{-1}$. Adjust the sensing lever so that the control-rod travel is 0.1 (0.1 - 0.2) mm above the full-load control-rod travel at $n=1000^{-1}$.

- 5. *** Correct the quantity of fuel injected at the correction screw of the ALDA aneroid box. Max. correction <u>+</u> 0.75 mm control-rod travel.
- 6. Pin projection = 16.65 ± 0.1 mm
- 7. Shutoff check: Operate the fuel-injection pump at $n=200 \text{ min}^{-1}$. Force the control rod through the spring-loaded idle stop. The resulting control-rod travel must be max. 5 mm.
- 8. Test the pneumatic shutoff: Control lever in idle position.

 Operate the fuel-injection pump at n = 375 min⁻¹. At 450 mbar

 (338 mmHg) (vacuum) the control rod must move briskly to control-rod travel 0 mm.
- 9. Control-lever range idle full load = $38 42^{\circ}$.

10. Testing and setting of control-rod travel sensor
with evaluation circuit
K5/EES - RWG.00 RBN - 40

Receiving inspection:

Set control lever so that a voltage of 2.1 ± 0.005 V is indicated on the digital voltmeter.

Set engine speed of 1000 1/min; fuel delivery of 27.5 - 28.5 ccm/1000 lifts must be reached.

Control lever at full-load stop (control-rod travel 13.5 - 13.6), voltage value 3.2 ± 0.08 V.

Setting the control-rod travel sensor:

At 1000 1/min set a fuel delivery of 27.5 - 28.5 ccm/1000 lifts with control lever. Move control-rod travel sensor until $U = 2.1 \pm 0.005$ V is indicated (tighten fastening screws to 3 Nm). Control lever at full-load stop (control-rod travel = 13.5 - 13.6); voltage of 3.2 ± 0.04 V must be reached.

11. ** Idle checking point

estoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 3.0 k 3. Edition

En

supersedes9.79

company Daimler Benz OM 617

 $1 - 2 - 4 - 5 - 3 = 0 - 72-144-216-288^{+}_{-0},5 (0,75)$

0 420 081 017

Note: Before starting testing, observe the important instructions on the reverse.

See Point 3
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

PES 5 MW 55/320 RS 20

RW 375/2200 MW 27

Port closing at prestroke

2,10-2,20 (2,05-2,25)

mm (from BDC)

21,0 mm^{Control rod travel}

oline ADA

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (compensating valve)
rev/min	mm	cm ⁴ /100 strokes	cm ¹ /100 strokes	mm	cm 1/100 strokes	mm
1	2	3	4	2	3	6
1000	13,2+0,	3,8 - 3,9	0,25(0,3)			
375	6,6-6,8	0,6-0,7	0,1(0,15)			
1600	Abschn.	C. Sp. 4-5	0,25(0,3)			
2180	Abschn.	C. Sp. 4-5	0,25(0,3)			

Set uniform delivery according to the values in

Checking values in brackets

B. Governor Settings

ohne ADA

Lower rated spe	eed		Upper rated sp	eed		Variations in co	ntrol rod trav	el
	Control rod travel		Degree of deflection of control	Control rod travel	Rotational speed		Rotational speed	Control rod travel
	mm	rev/min	lever	min	rev/min		rev/min	mm
•	2	3	4	5	6	7	8	9
30 () (2) (3) (4) (5)	11,0 6,6-6,8 ** - 2,0	100-300 375 385 - 650-700	(8)	-	2 2180 2280-2300 2670-2730 2950	(12) (13) (14) (6)	100 1600 1000 Switching po	20,5-21,5 13,0-13,2 13,2-13,3

C. Settings for Fuel Injection Pump with Governor Mounted

ohne ADA

Full-load o	telivery (19)	Full-load speed (8a) regulation	Variations delivery	in fuel (17)	Starting f	uel delivery		
Test of ter	mp 40°C (104°F)			1 (18)	1	<u> </u>	Difference	
rev/min	cm ¹ /1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	cm1/1000 stro	kes
1	2	3	4	5	6	7	8	
2180	39,0 - 41,0 (38,0 - 42,0)	2280-2300* (2275-2305)	1600	39,0 - 41,0 (38,0 - 42,0)	100	mind. 57	6,0	123
	1		1000	38, 5 - 39, 5 (37, 5 - 40, 5)	375	6,0-7,0 (5,5-7,5)	1,0	(15)
					2550	14,5 - 20,5 (13,5 - 21,5)	2,5 (3,0)	(16)

Checking values in brackets

* 1 mm less control rod travel than in Column 2



1. Testing of sections A, B and C should be done without the ADA aneroid box. When this test has been completed the ADA aneroid box is connected.

Testing the governor with ADA-aneroid box (147)

Engine speed	Setting point	Control-rod travel reduction from full-load control-rod travel
1000 min ⁻¹	840 mbar (630 mm Hg) Checking point	1,0 - 1,2 (0,95 - 1,25) mm
1000 min ⁻¹	907 mbar (680 mm Hg)	0,3 - 0,6 (0,35 - 0,65) mm

- 2. Pin projection = 16.65 ± 0.05 mm.
- 3. Adjusting the idle stage

Text replaces section 4.1 of the test instructions.

Set the control lever to 30°.

Operate the fuel-injection pump at n = 800 min⁻¹.

Screw the spring retainer (torque-control capsule) or the driver with a pin wrench KDEP 1064/1 or a 1/2" hexagon-socket-screw-key so far that a control-rod travel of 1.2 - 1.5 mm is attained.

Further test steps see Test Instructions VDT-W-420/300 En.

- 4. ++ At this engine speed exceed the control-rod travel by 0.4 ± 0.1 mm. Idle delivery must not be affected.
- 5. Adjustment angle: Stop...idle = 35°, idle...full load = 39°.
- 6. Sensing lever adjustment: Set the sensing lever at n = 375 min⁻¹ (control lever in full-load position). At this speed the control-rod travel must exceed the full-load control-rod travel at n = 1000 min⁻¹ by 0, 1 0, 3 (0, 1-0, 4 mm) mm.
- 7. Check the pneumatic shut-off:

Control lever in idle position. Operate the fuel-injection pump at $n = 375 \text{ min}^{-1}$. At $p_u = 450 \text{ mbar}$ (338 mm Hg) (vacuum) the control rod must quickly return to control-rod travel 0 mm.

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 KHD 12,7 c

5. Edition

PE 8 MW 100/720 LS 1010

Komb. 0 403 548 003

ROV 300-1250 MW 31

superseded 1.82 company: KHD

BF 8 L 413 F 235 kW (320 PS) bei 2500 min

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	I I	3.10-3.20 mm (from BDQ)ei RW = 9.0-12.0 mm							
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)			
rev/min	mm	cm ³ /100 strokes	100 strokes	mm 2	cm ³ /100 strokes	mm			
·		-	-		3	0			
1250	12,2+0,1	13,0-13,2	0,35(0,6)						
300	6,4-6,6	1,25-1,65	0,35(0,55)		1.			
850	12,7+0,1		0,5(0,7)						
500	9,7+0,1		0,35(0,6)						

Adjust the fuel delivery from each outlet according to the values in [

5. Governor Settings

Upper rated speed				Intermediate rated speed			Lower rated speed				Sliding sleeve travel	
Degree of deflection of control lever	rev/min Control rod travel	Control rod travel mm rev/min		Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control re travel			0
1	2	3	9	4	5	6	7	8	mm 9	(3)	rev/min 10	mm 11
max.	1250 1500	15,2-17, 0-1,0					ca. 15	300	min.8, 6,8-6,	9		
ca. 65	11,2 4,0	1290-130 1375-140					380-440	i	730=2,0	,		
						- (1)	3					

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F)		intermediate speed		Idle	fuel delivery 6	Torque-control 5 travel Control rod		
rev/min 1	cm ³ /1000 strokes	rev/min 49	rev/min 4	cm ³ /1000 strokes	rev/min	cm³/1000 strokes 7	rev/min 8	travel mm
LDA 1250	0,7 bar 130,0-132,0 (128,0-134,0)	1290-1300*	LDA 850	0,7 bar 130,5-134,5 128,5-136,5)	100	136,5-146,5 (133,5-149,5	1000	12,7+0, 12,4+0, 12,2+0,
			LDA 500	0 bar 84,5-86,5 (82,5-88,5)	300	12,5-16,5 (10,0-19,0	! 1	12,2+0,

Chucking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

D. Adjustment Test for Manifold Pressure Compensator

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

KHD 12,7 c

-2-

Pump/governor	Setting	Measurement	diminution difference		
	Gauge pressure = bar	Gauge pressure = bar	mm (1)		
LS 1010 with MW 31	0,7 bar	0,3 0,23	12,7 - 12,8 11,9 - 12,0 10,4 - 10,6		

Notes

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 0MB 8,1 c 1 4. Edition

PES 6 MW 100/720 RS 1012

ROV 425-1100 MW 35

supercedes 12.83

0 403 446 126

company: OM-Brescia 8365.25.522

1-5-3-6-2-4

 $0-60-120-180-240-300 \pm 0.50 (0.75)$

122 kW (152 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,90-3,00 Port closing at preshoke

mm (from BDC) RW 9.0-12.0 mm

Rotational speed rev/min	travel	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	10,2+0,1	8,15-8,35	0,35(0,6)			
425	5,8-6,0	1,05-1,45	0,35(0,55			
700	11,1+0,1		0,5 (0,7)		,	
500	10,6+0,1		0,35(0,6)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated s	peed		Intermediate	e rated sp	eed	Lower rated	speed			
deflection	rev/min Control rod travel	mm C	Degree of deflection of control		Control rad travel	Degree of deflection of control		Control rod travel	Sliding	leeve travel
lever	шш	rev/min (28	lever	rev/min	mm (4)	lever	rev/min	mm (3)	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
max.	1100	15,2-17,8	3 -	-	-	ca. 14	425	5,8-6,0	425	1,8
	1300	0 - 1,0					100	min. 7,5	500	2,3-2,9 9,0-9,2
ca. 48	9,2	1140-1150							1130	3,0-3,2
2.7		1185-1215								
L						3				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter	O STOP	Rotational-speed (2b) limitation intermediate speed	Fuel deli- high idle s	very characteristics 5e	idle	fuel delivery 6	Torque- travel	control 5
rev/min	cm³/1000 strokes	rev/min 4a	rev/min 4	cm ³ /1000 strokes	rey/min	cm ³ /1000 strokes	rev/min	travel mm 9+0-1
LDA 1100	0,5 bar 81,5-83,5 (79,5-85,5)	1140-1150*	LDA 700 LDA 500	0,5 bar 84,5-88,5 (82,5-90,5) 0 bar 67,5-69,5 (65,5-71,5)	100 425 100-	RW max. 19 min.160 (min.157) 10,5-14,5 (8,0-17,0) 345 (80-365)	700 1000	11,1

Checking values in brackets

* t mm less control rod travel than col 2

10.84

H13

BOSCH

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

OMB 8,1 c 1

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Pump/governor	Setting	Measurement	diminution , difference
	Gauge pressure =	Gauge pressure =	bar mm (1)
RS 1012 with	0,25		10,9 - 11,0
RQVMW35		0,5	11,1 - 11,2
		0	10,6 - 10,7
•			

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 0MB 8.1 c

3. Edition

PES 6 MW 100/720 RS 1012

ROV 425-1000 MW 36-1

supersedes8.83

0 403 446 133

OM Brescia 8365.25.530

121,4 kW (165 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel injection Pump Settings

Port closing at prestroke

2,90-3,00 mm (from BDC) RW 9 - 12 mm

Rotational speed rev/min 1		Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes: 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	11,7+0,1	9,1-9,3	0,35(0,6)			
	6,4-6,5 12,6+0,1 11,5+0,1		0,55,0,55 0,5,9,7) 0,3§(0,6))		

Adjust the fuel delivery from each outlet according to the values in 2

B. Governor Settings

Upper rated Degree of deflection of control	speed rev/min Control rod travel	Control rod travel	Interrestate Degreesif deffection of spotreft	e rated sp	Control rad travel	Lower rated Degree of deflection of control	speed	Control rod travel	Sliding steeve travel		
lever		rev/min (2)	lever	rev/min	mm 4	lever	rev/min	mm 3	rev/min 10	mm 11	
max.	1100 1200	15,2-17,8 0-1,4	-	-	-	ca. 26	425 100	6,4-6,5 min.8,0	425 500 050	1,8 2,3-3,0 8,6-8,7	
ca. 51	10,7	1040-1050 1120-1150		í		③	490-5	50 = 2,0		0,0-0,,	

Torque control travel a = 1.1

C. Settings for Fuel Injection Pump with Fitted Governor

নিগা-load d তিকাtrol-ro বৈশ্বহা oil ten		Ratational-apped (Ponitation intermodiate apped	Fuel deli high idle	very characteristics (5e speed (50)	idle	fuel delivery 6	Torque- travel	control 5
re/min	cm³/1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rov/min	cm ³ /1000 strokes	rev/min	
LDA 1000	0,6 bar 91,0-93,0 (89,0-95,0)	1040-4050 *	LDA 700	0,6 bar 100,0-104,0 (98,0-106,0)	100	RW 19-21 160,0-180,0 (157,0-183,0)	500 700 800	9+0,1 12,6 12,6 12,4
		_	LDA 500	0 bar 71,5-73,5 (69,5-75,5)	425 100-	13,5-17,5 (11,0-20,0 345 (80-365)	950 1000	11,7 11,7

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testatn =

500

rev/min decreasing pressure - in bar gauge pressure

OMB 8,1 c

_ 2_

Testoil-ISO 4113

Pump/governur	Setting	Measurement	diminution / Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
RS 1012 with	0,36		12,2 - 12,3
RQV-MW 36-1		0,6	12,6 - 12,7
		0	11,5 - 11,6
		0,31	11,8 - 11,9

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

0

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 FIA 5,5 g

2. Edition

Testoil-ISO 4113

PES 6 MW 90/720 RS 1015 0 403 446 146 RQV 300-1600 MH 49

superiedes 11.63

company:

engine:

IVECO-Fiat 8062.24.668

140 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke	(2.45-2.65)	mm (from BDC)	nm (from BDC) RW = 9.0 - 12.0 mm							
Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)					
rev/min 1	mm 2	cm ³ /100 strokes 3	100 strokes	mm 2	cm ³ /100 strokes 3	mm 6					
1000	10,4+0,1	7,6 - 7,8	0,35 (0,6)							
375	6,6-6,7	1,0 - 1,4	0,35(0,5)							
1600	10,4+0,1		0,5 (0,7		ĺ						
500	8,9-9,0				ł						

Adjust the fuel delivery from each outlet according to the values in

* Note: Idle adjustment must be made at 375 min/1. The rotational speed

B. Governor Settings shown on the name plate.

Upper rate	speed			Intermediate	rated sp	00 d	Lower rated	speed			Cliding	leeve travel
Degree of deflection of control	rev/min Control rod trave	trevel \	2	Degree of deflection of control		Control rod travel	Degree of Control rod travel			0		
lever	mm TOG (1246	rev/min (lever	rev/mln	mm (4)	of control lever	rev/min	mm (3)	rev/min	mm
1	2	3		4	5	6	7	8	9		10	11
max.	1640 1900	15,2-17, 0-1,0					ca. 16		6,6-6,7 min.9,0			
ca. 63		1640~165 1770-180										
							③	390-8	80			_

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2		Rotational-speed 20 limitation intermediate speed			Starting idle awitchir	• . •	Torque- travel	Control cod	
rev/min	cm³/1000 strokes	rev/min 49	rev/min	cm³/1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm	
-	2	3	4	5	6	7	0	9	
LDA 1000	0,5 bar 76,0-78,0 (74,0-80,0)	1640-1650*	LUA 1600 LUA 500	0,5 bar 82,0-86,0 (80,0-88,0) 0 bar 42,5-44,5 (40,5-46,5)	200 375	160,0-180,0 (157,0-183,0 10,0 - 14,0 (9,0-15,0))		

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

FIA 5,5 g

-2-

Testoil-ISO 4113

Pump/gavernor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
RS 1015 with	0,5		10,4 - 10,5
RQVMW 49		0	8,9 - 9,0
		0,21	10,0 - 10,1
		0,18	9,3 - 9,4

Notes.

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (A) and Governors

WPP 001/4 RVI 5,5 a

3. Edition

PES 6 MM 80/320 RS 1104 RSV 300-1450 MW 2/801 0 403 476 013

supersedel.84 MD 060212 97.8 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1,75-1,85 (1.70-1.90)

mm (from BDC)RW = 9.0-12.0 mm

Flotational speed iev/min	Control rod travel mm 2	Fuel delivery cm //100 strokes 3	Difference cm·/ 100 strokes 4	Control rod travel mm	Fuel delivery cm*/100 strokes 3	Spring pre tensioning (torque-control valve)
'900	10,4-10,5	5,05-5,25	0,25(0,4)			
300	4,7-4,9	0,85-1,15	0,2(0,35)			
1450	9,4-9,5		0,35 (0,4) 5)		
				ĺ		

!Adjust the fuel delivery from each outlet according to the values in E

B. Governor Settings

Note: Adjuste the idle speed auxiliary spring touching, then turn back 1/4 turn

1 Uppe	r rated speed		Interme	diate rate	d speed	(4)	Lower	rated speed	(3) 10	rque control
Degree of deflection of control	travel	travel mm rev/min				Control lever deflection	rev/min	Control rod travet	rev/min	Control rod travel
lever 1	2	3	4	5	6	in degrees 7	8	9	10	11
loose	800	0,3-1,0				ca. 20	300	4,8	900	10,4-10,5
	x = 4	,0					250	max. 6,4	1050 1450	
ca. 58		1515-1525							1150	
29	3,9 0-1,0	1555-1585 1650								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	ull-load stop emp 40°C (104°F)	Rotational speed imitat		uel delivery naracteristics	Starting t	luel delivery 5		
rev/min 1	cm ¹ /1000 strokes 2	changed to 1 rev/min 3	rev/min 4	cm ¹ /1000 strokes 5	rev/min	cm1/1000 strokes	rev/min	Control rod travel mm 9
900	50,5-52,5 (49,5-53,5)	1515-1525	* 142!	54,0-56,0 (52,0-58,0)	300	max. 15 mm RW 75,0-85,0 (70,0-90,0 8,5-11,5 (7,0-13,0)	

Checking values in brackets

* 1 mm less control rod travel than col 2

7.84

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Test Specifications Fuel Injection Pumps 1 PP 001/4 RVI 8,8 K 3 and Governors

PES 6 MW 100/320 RS 1016 RQV 300-1300 MW 25-3 0403 446 144 1-5-3-6-2-4 0-60-120-180-240-300 ± 0,50 (0,75) supersedes company RVI engine MIDS 060212 107 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	10,5+0,1	8,25-8,45	0,35(0,6)			,
300	5,7-5,8	0,95-1,35	0,35(0,55)		
900	10,5+0,1		0,5 (0,7)			
500	9,7-9,8					

Adjust the fuel delivery from each outlet according to the values in g

B. Governor Settings

Upper rated s	peed		Intermediate	e rated sp	eed	Lower rated	speed	•	Stidings	leeve travel
deflection of control	rev/min Control rod travel mm	Control rod travel mm rev/min 2a	of control	rev/min	Control rud travel mm 4	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	mm (1)
1	2	3	. 4	5	6	7	18	9	10	11
max.	1300	15,2-17,8				ca.12	300	5,7-5,8		
	1650	0 - 1,0				<u> </u>	200	min. 6,9		
ca. 61	9,5	1360-1370	1				ļ			ı
1	4,0	1475-1505					325-	600		
						3a				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed 2b limitation intermediate speed	Fuel delin	very characteristics (5e)	Starting idle switchir		Torque- travel	Control Co
rev/min	cm³/1000 strokes	rev/min 4	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA 1300	0,7 bar 82,5-84,5 (80,5-86,5)	1360-1370*	LDA 900	0,7 bar 79,5-83,5 (77,5-85,5)	100	95,0-105,0 (90,0-110,0)		
			LDA 500 ·	0 bar 54,5-56,5 (52,0-59,0)	300 100-	9,5-13,5 (7,0-16,0) 220 (80-250)		

Chucking values in brackets

* 1 mm less control rod travel than col 2

10.84

BOSCH

500

rev/min decreasing pressure - in bar gauge pressure

RVI 8,8 k3

-2-

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Pump/governor	Setting	Measurement	Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
RS 1016			10,5 - 10,6
with MW 25-3	0,7	0,12	10,1 - 10,2
		0,10	9,8 - 9,9
		0	9,7 - 9,8
	į		·

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 VOL 4,5 K 1. Edition

En

PES 4 MW 100/320 RS 1116 RQV 300-1100 MW 51 0 403 444 108

company 45-EM engine 85 kW

1- 3- 4 - 2 0-90-180-270 ± 0,50 (0,75)

1 2

1)2

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	2,5+0,1	11,6-11,8	0,35(0,6)			
300	5,8-5,9	1,3-1,7	0,35(0,55			1
1000	2,5+0,1		0,55		ý	
700	0,5+0,1					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed			Intermediate	rated sp	ee d	Lower rated	speed			Sliding	leeve travel
Degree of deflection of control lever	rev/min Control rod travel mm	mm	(S)	Degree of deflection of control lever	rev/min	Control rod travel mm 4	Degree of deflection of control lever	rev/min	Control rod travel mm (9	3	rev/min	mm 11
max.	1150 1350	5,2-17,8 0-1,0					a. 12		5,8-5,9	•		
ca. 52	11,5	140-1150 200-1230		:								
							3	30-45	50			

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter		limitation intermediate speed	high idle s	very characteristics (5a)	Starting Idle switchle	. 0	Torque- travel	Control rod	
rev/min	cm³/1000 strokes	rev/min 4a	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm	
1 _	2	3	4	5	6	7	8	9	
LDA 700	0,75 bar 116,0-118,0 114,0-120,0)	1140-1150*	LDA 1000 LDA 700	0,75 bar 117,0-121,0 114,5-123,5) 0 bar 79,0-81,0 (76,5-83,5)	300	130,0-140,0 127,0-143,0) 13,0-17,0 (10,5-19,5) 230(80-250)			

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test at n =

700

rev/min decreasing pressure - in bar gauge pressure

VOL 4,5 k

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	80
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700				VUL 4,5 K -2
Pump/governor	Setting	Measurement	Control rod travel	diminution , difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)	
RS 1116				
with MW 51	0,75		12,5	- 12,6
		0,52	12,4	- 12,5
		0,26	10,6	- 10,7
		0	10,5	- 10,6
		<u> </u>	L	

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 KHD 12,7 t

1. Edition

PE 8 MW 100/720 LS 1117 RQ 300/1000 MW 52-1 0 403 548 009

compan KHD F 8 L 413 F 2

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

}

3,10-3,20

RW = 9.0-12.0 mm

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve) mm
650	11,4+0,	1 10,6-10,8	0,35(0,6)			
300	7,5-7,6	1,1-1,5	0,35(0,55)		
1150	10,0+0,	1	0,5 (0,7			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check Control rod Full-load sp		oint	Test spe	cifications (4)	Idle speed regulation Settling point Test specifications				Torque control		
rev/min 1	travel	rev/min 3	rad travel mm	Control red travel mm 5	rev/min 6	rev/min 7	Control rad travel rnm 8	rev/min 9	Control rod	rev/min 11	travel
550	19,2-20,8	550	20,0	9,0	1195-1210	300	7,5	100	min.9,0	1150	10,0-10,1
				4,0	1240-1270			300	7,5-7,6	650	11,4-11,5
135	0 - 1,0							350-	380 = 2,0	850	10,5-10,8

Torque-control travel

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	lelivery on control lever mp 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics 3b	Starting f	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	Control rad travel cm ³ /1000 strokes:/ mm
650	106,0-108,0 (104,0-110,0)		1150	96,0-98,0 (93,5-100,5)	100 300 100-2	130,0-140,0 (127,0-143,0) 11,0-15,0 (8,5-17,5) 30 (80-250)

Checking values in brackets

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 KHD 13.4 a 2. Edition

PE 8 MW 100/720 LS 1118 RQV 300-1150 MW 56 0 403 548 007

. 5000/1.

supersed 84 companyKHD engine BF 8 L 513 222 kW

1-8-7-2-6-5-4-3 0-45-90-135-180-225-270-315 ± 0,50 (0,75)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings 3,10-3,20

Port closing at pre	Port closing at prestroke		mm (from BDC)	RW = 9,	U-12,0 mm	
Rotational speed travel rev/min mm 1 2		Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	14,2+0,1	13,3-13,5	0,35(0,6)			
300	8,7-8,8	1,6-2,0	0,35(0,55	,		
1150	13,6+0,1		0,5 (0,7)			
450	13,2+0,1					

Adjust the fuel delivery from each outlet according to the values in F

B. Governor Settings

Upper rated s	í		Intermediate	rated sp	1	Lower rated	speed	f	Sliding s	leeve travel
deflection	rev/min Control rod travel	Control rod travei	Degree of deflection of control		Control rod travel	Degree of deflection		Control rod travel	. ①	
	mm	rev/min 20	lever	1	mm (4)	of control lever	rev/min	тт 3	rev/min	mm
1	3	3	4	5	6	7	6	9	10	11
max.	1175 1400	15,2-17,8 0-1				ca. 22	300	6,7-6,8		
ca. 55	12,6 4,0	1190-1200 1300-1330					320-6	550		
						3				

Torque control travel a = 0,6

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed 2b limitation intermediate speed	Fuel deli- high idle :	very characteristics (5a)	Starting Idle switching		Torque-control 5 travel	
rev/min	cm³/1000 strokes	rev/min 4a 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes	rev/min 8	travel mm
LDA 700	0,8 bar 133,0-135,0 (131,0-137,0)		LDA 1150 LDA 450	0,8 bar 129,0-131,0 (126,5-133,5) 0 bar 104,0-106,0 (101,5-108,5)	300	140-150 (137-153) 16,0-20,0 (13,5-22,5)	1000 750 900	3,6+0,1 4,2+0,1 3,8+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test at n = fev/min decreasing pressure - in bar gauge pressure

KHD 13.4 a

-2-

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Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure =	bar Gauge pressure =	bar mm (1)
Pumpe LS 1118	0,8		14,2 - 14,3
with MW 56		0,36	13,9 - 14,0
		0,26	13,4 - 13,5
		0	13,2 - 13,3

Notes

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 11.8 a 1 3. Edition

Testoil-ISO 4113

PE 6 P 110 A 720 RS 15

Komb.-Nr. 0 401 846 194

RQ 250/1100 PA 111 DR

supersedes 3.82

Daimler-Benz OM 355

154 kW (210 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(2.75-2.95)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery		Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)		
rev/min	mm	cm ³ /100 strokes	cm³/ 00 strokes mm		cm ³ /100 strokes	mm		
1	2	3	4	2	3	6		
1090	12,0+0,1	10,0 - 10,2	0,3(0,6)					
250	7,9-8,1	1,7 - 2,3	0,3(0,5)					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	g of slider	Full-load	speed re	gulation		ldle spec	ed regula	ation		Torque controt			
ļ.		Setting po	oint	Test spe	cifications	Setting p	oint	Test spe	cifications	[
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel rom 4	rev/min 5	Control rod travel mm 6	rev/min 7	Control red travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12		
600	15,5-16,5	600	16,0	11,0 4,0 1300		•		250	mind. 7,0 5,9-61 25 = 2,0	1090 700 450	12,0-12,1 12,3-12,4 12,6-12,7		

Torque-control travel on flyweight assembly dimension a =

Speed regulation A1135 - 1150 min-1

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp 40°C (104°F)	Control rod stop	Fuel deliv	very characteristics	Starting	luel delivery
rev/min	cm ¹ /-1000 strokes 2	rev/min 3	rey/min	cm ³ /-1000 strokes 5	rev/min	cm ³ /100 strokes 7
1090	100,0 - 102,0 (98,0 - 104,0)		700 450	96,0 - 99,0 (94,0 - 101,0) 90,0 - 94,0 (88,0 - 96,0)	100	150,0-170,0 (146,0-174,0)

Checking values in brackets

5.84

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung c. 1980 by Robert Bosch GmbH. Postfach 50, D-7000 Stuttgart f. Printed in the Federal Republic of Germany Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH.

Test Specifications Fuel Injection Pumps and Governors

VDT-WPP 001/4
1. Edition

En

PES 8 P 100 A 921/5 RS 286 .. 920/5 RS 286/34

EP/RSV 350-1050 PO/392 DR 350-1200 PO/394 DR 350-1050 PO/409 DR supersedes_

company: IHC - USA engine: DVT 800

s. WPP 110/2, 3. Ausgabe! 1-8-4-2-7-3-6-5 je 45°!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,8+0,1

mm (from BDC)

Checking tolerance + 0,15 -0,05

rev/min 1	Control rod travel mm	Fuel delivery cm ³ /100 strokes	Difference cm³/ 100 strokes	Control rod travel mm	Fuel delivery cm³/100 strokes	Spring pre-tensioning (torque-control valve)
1000	12	11,4-12,0	0,4			6
600	15	16,2 - 17,8				
200	6	2,9 - 3,9				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

P 0/392 DR

Upper Degree of deffection of control lever	rated speed rev/min 2	Control rod travel mm	Intermediate Degree of deflection of control lever	rated spe rev/min 5	Control rod travel mm	1 Lowe Degree of deflection of control lever	rated spe rev/min 8	Control rod travel mm	3 Tor	que control Control rod travel mm
ca. 49	1050 1150 1230	16,0 10,3 3,9	without	auxo	liary spr	ca. 26 ng	350 150	6,0 19 - 21	1030	0
(5)	1050 1150 1200	ca. 9,0 ca. 3,0 0,3-1,0	with au	ıxilia	ry spring		350 460	5,7-6,3 0 - 1	450	1,1-1,3

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-lo	ead stop	6 Rotational- speed limitat		el delivery aracteristics	Starting Idle	fuel delivery	Se idi	e stop
Test oil tem rev/min 1	p. 40°C (104°F) cm³/1000 strakes 2	Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes	rev/min	cm ³ /1 000 strokes	rev/min	Control rod travel mm
1050	69,0 - 71,0	1100-1110+	800	91,0 - 95,0	100 350			
			145	5,0 - 11,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

6

(1) Upper	rated spec	ed	Intermediate	rated spe	ed	(4) Lowe	r rated sp	ead	(3) 10	rque control
Degree of deflection of control lever	rev/min	Control rod travel mm 3	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	revimin	Control rod travel mm
ca. 64	1200 1350	16,0 9,4				ca. 34	350	6,0		
	1450	3.2	without	auxo	liary spri	ng	150	19 - 21	1200	0
ca. 55	1200	ca. 8,6	ŀ				350	5,7-6,3	500	0,5-0,7
(5)	1310 1400	ca. 3,0 1,0-2,0	with au	ıxilia	ry spri n g		540	0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	load stop	6 Hotational- speed limitat		el delivery Bracteristics	Starting	fuel delivery	(5a) idle stop	
Test oil ter rev/min 1	np 40°C (104°F) cm³/1000 strokes 2	Note changed to rev/min 3	rev/min	cm³/1000 strokes 5	rev/min	cm³/1000@rokes	rev/min	Control rod travel mm
1200	65,5 - 67,5	1250-1260+	850	76,5 - 80,5	100 350	190 - 230 8 - 11		
			1310	5,0 - 17,0				

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

P 0/409 QR

ated speed	i	Intermediate rated speed			(4) Lowe	r rated sp	eed	3 Torque control	
rev/min 2	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	Control rod travel
			1-	10	<u> </u>	l°	9	110	11
1050	16,0	ł			ca. 29	350	6.0	ì	
1120	11,0	without	aux il	iary spri	na	100		1030	0
1190	4,2	1		tury opt t	1			1	ľ
1050		with au	xiliar	y spring		350	5,7-6,3	500	1215
		- I				380	3,5-4,8	1 300	1,3-1,3
		1				420	1,0-2,0	1	
	1050 1120 1190 1050 1150	rev/min 2 1050 16, 0 1120 11, 0 1190 4, 2 1050 ca. 9, 8 1150 ca. 3, 8	Control rod travel Degree of deflection of control lever	Control rod Control rod Control rod Control rod Control	Control rod travel rev/min 2 1050	Control rod travel rev/min 2 1050 1120 1170 1190 1190 1190 1190 1190 1190 119	Control rod travel Tev/min 2 1050 16,0 1120 11,0 1190 4,2 1050 ca. 9,8 1150 ca. 3,8 Degree of deflection of control lever fev/min s Control rod travel fravel Tev/min s Control rod travel fravel Tev/min s Control rod travel fravel Tev/min s Ca. 29 350 150 350 380	Control rod Control rod	Control rod Control rod

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-I	oad stop	6 Rotational- speed limitat		el delivery aracteristics	Starting	fuel delivery	(5a) Idl	e stop
Test oil ten rev/min t	op 40°C (104°F) cm³/1000 strokes 2	Note changed to rev/min	rev/min	cm ³ /1000 strokes 5	rev/min	cm³/1000 G rokes	rev/min	Control rod travel mm
1050	81,5 - 83,5	1090-1100 *	750	103,5 - 107,5	100 350	190 - 230 8 - 11		
			1150	5,0 - 17,0				

Festoil-ISO 4113

Test Specifications Fuel injection Pumps 1 and Governors

VDT-WPP 001/4 STE 10,0 C 5. Edition

PE 8 P 110 A 221 LS 331 1 - 5 - 4 - 8 - 6 - 3 - 7 - 2 je 45°!

ROV 250-1300 PA 315 DR

supersede5.80

companyS teyr engine: WD 815.60 (320 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2.8 + 0.1

mm (from BDC)

Checking tolerance + 0.15 -0.05

	travel	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 8
1300	13,1-13,2	13, 1 - 13, 3	0,4			
250	7 - 8	1,0-2,0	0,4			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed		Intermediate	rated sp	ed	Lower rated	speed		Sliding a	leave trave!
deflection	rev/min Control rod travel mm 2	travel	Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min	Control rod travel mrc 3	rev/min	mm 11
ca. 66	1320 1400 1460 1560	15,0-17,6 7,2-12,2 1,0-7,6 0	•	•	-		100 250 400 660	6,2-7,6 4,8-6,1 1,8-3,2 0	450	0,5-1,2 2,9-2,5 5,4-5,8 8,3

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-roe Test oil ten		Rotational-speed 2b limitation intermediate speed	Fuel delic high idle s	very characteristics 5a	Starting idle switching	• . •	Torque- travel	control (5)
rev/min	cm ³ /1000 strokes	rev/min 40	rev/min	cm ³ /1000 strokes	rev/min	cm³/1000 strokes	Fev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA	0,5 bar		LDA	bar				
1300	131,0-133,0	1330-1345#	1300	112,9-116,0	100	15,0 - 17,0		
(incr	ease by ± 3,0	cm³)						

Chucking values in brackets

* 1 mm less control rod travel than col. 2

J6

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

STE 10,0 c

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Pump/governor	Setting	Meas	surement		diminution Control rod travel difference
	Gauge pressure =	bar Gaug	ge pressure =	bar	mm (1)
331 with 315 DR	0,245				- 0,1
			0,14		- 1,2

Notes

(1) when n =

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

2

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 MB 11,4 1 12

1. Edition

En

PES 6 P 110 A 820 LS 442 Komb.-Nr. 0 402 046 306

RQ 300/1100 PA 691-1

supersedes _

company Daimler-Benz engine OM 407 H

177 kW

A. Port ci

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,15-3,35) mrn (from BDC)

travel *	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm
11,3+0,1	12,5-12,7	0,4(0,8)			
7,7-7,9	1,3-1,9	0,4(0,7)			
-	C, Sp 4 u. 5	0,6(0,9)			
	11,3+0,1 7,7-7,9	mm cm³/100 strokes 2 3 11,3+0,1 12,5-12,7	mm cm ³ /100 strokes 2 cm ³ /100 strokes 4 100 strokes 4 11,3+0,1 12,5-12,7 0,4(0,8) 7,7-7,9 1,3-1,9 0,4(0,7)	mm cm ³ /100 strokes 2 cm ³ /100 strokes 4 mm 2 11,3+0,1 12,5-12,7 0,4(0,8) 7,7-7,9 1,3-1,9 0,4(0,7)	mm cm³/100 strokes 2 cm³/100 strokes 4 cm³/100 strokes 3 cm³/100 s

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

1	g of slider	Full-load a	peed re	gulation		idle spec	ed regula	ition		Torque o	control
PRG che		Setting po			cifications (4)	Setting p	_	Test spe	cifications (5)		(3)
rev/min	travel mm	rev/min	Control red travel rmm	Central red travel rnm 5	rev/mir.	rev/min	red travel rnm	rev/min	travel mm		Control rod travel mm
600	13,0-14,0	600	13,5	10,3 4,0 1350	1130-1140 1175-1215 0-1,5		7,8	100 300 365-4	min.9,4 7,7-7,9 05=2,0	-	c

Torque-control travel on flyweight assembly dimension a =

mm

1130-1140 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	felivery on control lever mp. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics	Starting f	
rev/min 1	cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes	rev/min 6	Control rod travel cm ³ /1000 strokes / mm
1100	125,0-127,0 (122,5-129,5)		600	110,0-114,0 (107,0-117,0)	100	130.0-150,0 (126,0-154,0) ** See page 2

Checking values in brackets

7.84

BOSCH

Geschaftsbereich KH. Kundendienst. Kfz-Ausrustung. < 1980 by Robert Bosch GmbH. Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH. ** The controller is equipped with a starting device that depends upon the temperature (TAS).

Instructions for adjusting the starting flow:

Adjust the starting flow without the TAS with the control-rod plug cap. Then put on the TAS and adjust a control.rod travel of 11.8 - 11.9 mm at room temperature.

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 RVI 14,9 c 1

1. Edition

PES 8 P 120 A 320 RS 466 RQV 275-1050 PA 665-1 Komb.-Nr. 0 402 048 043 1-8-4-2-7-3-6-5 je 45° ± 0.5° (± 0.75°) Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

companyRVI engine MIVS 083530 280 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke	2,8-2,9 (2.75-2.95)	mm (from BDC)	port c	losing mark 1. losing cylinder	3° after -1
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control vaive) mm 6
1050	9,7-9,8	19,0-19,2	0,5(0,9)			
275	3,3-3,5	1,7-2,3	0,8(1,2)			1
					ļ	
					<u> </u>	1

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	Upper rated speed Intermediate rated speed				eed	Lower rated	speed		Sliding sleeve travel	
deflection of control	rev/min Control rod travel mm	Control rod travel mm rev/min (2	of control		Control rod travel	Degree of deflection of control		Control rod travel		0
1	2	3	4	rev/min 5	mm (4)	lever	revimin 8	mm (3)	rev/min 10	mm 11
max.	1140	15,2-17,8	_	-	-	ca. 9	200	min.5,1	275	1,5-1,6
ca. 64		1105-1115 1175-1205		Ì		i	275	3,3-3,5	450 800	3,4-3,8 5,8-6,0
	1300	0-1,0				280-400			1050	7,7
						③		_	_	

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil ter		Rotational-speed (2b) fimitation intermediate speed	Fuel deli- high idle :	very characteristics (5e)	Starting Idle switchli		Torque- travel	control 5
rev/min	cm ³ /1000 strokes	rev/min 49	rev/min	cm ² /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
LDA 1050	0,7 bar 190,0-192,0 (187,0-195,0)	1105-1115*	LDA 650 LDA 500	0,7 bar 172,0-178,0 (169,0-181,0) 0 bar 116,0-118,0 (113,0-121,0)		135,0-155,0 (131,0-159,0		-

Checking values in brackets

* 1 mm less control rod travel than col. 2

RVI 14,9 c 1

- 2 -

Testatn -

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel difference
	Gauge pressure - bar	Gauge pressure = bar	mm (1)
PES 8 PRS 466 + RQVPA 665-1	0,70	0 0,20 0,16	9,7-9,8 7,8-7,9 9,2-9,3 8,3-8,5

Notes

(1) when n

rev/min and gauge pressure =

bar (maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 MB 12.8k

2. Edition

En

Testoil-ISO 4113

PE 8 P 100 A 320 LS 810 RSV 575-1200P1/820 Komb.-Nr. 0 401 878 098

1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je $45^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$

supersed \$0.79 companDaimler-Benz engine OM 402 (147,1kW-200PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,35-3,55)

mm (from BDC)

Zv1.8

Rotational speed rev/min t	Control rod travel	Fuel delivery cm //100 strokes 3	Difference cm ⁴ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm/100 strokes	Spring pre-tensioning (torque-control valve) mm 6
1180	9.6-9.7	8,6 - 8,8	0,3(0,6)			
575	5,2-5,4	0,5 - 0,9	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

	r rated speed Control rod travel mm		Intermed	diate rated	speed	Control- lever dellection in degrees 7		rated speed Control rod travel mm	11 2 1	rque control Control rod travel mm
loose	800 x =	0,3-1,0 6,0	-	-	-	ca.28	575 5 75	5,3 5,2-5,4 = 2,0	-	•
ca.54	1245-12	225 = 8,6 260 = 4,0 0,3-1,		-			580-640	= 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	II-load stop emp_40°€ (104°F)	Rotational- speed limitat	speed limital Characteristics		Starting fuel delivery 5 4a Idle stop			
rev/min	cm ¹ / ₂ J0 strokes	changed to) rev/min	rev/min 4	cm*/1000 strokes 5	rev/min 6	cm/1000 strokes 7	rev/min 8	Control rod travel mm
1180	86,0 - 88,0 (84,0 - 90,0)	1215-1225*	-	-	•	•	-	-

Checking values in brackets

* 1 mm less control rod travel : ...in col 2

9.84

112

J12

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MB 12.8 b 3

1. Edition

PE 8 P 100 A 320 LS 810

RQV 300-1250 PA 227 R

company: Daimler-Benz

OM 402

Komb.-Nr. 0 401 848 041

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	stroke	3,4-3,5 (3,35-3,55)	mm (from BDC)			•
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring/pre-tensioning (torque-control valve) mm 6
1250	10,3+0,1	10,0-10,2	0,3(0,6)			
300	7,4-7,6	1,7-2,3	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in [

B. Governor Settings

Upper rated : Degree of deflection of control lever	rev/min Control rod travel	trevel	Intermediate Degree of deflection of control lever	rated sp rev/min 5	Control rod travel	Lower rated Degree of deflection of control lever 7		Control rod travel		mm
max. ca. 66	9,3	15,2-17,8 1290-1300 1330-1360 0-1,0		-	•	ca. 12	300	min.9,0 7,4-7,6 90= 2,0	550	0,7-1,0 3,3-3,5 4,7-5,1 8,0

Torque control travel a

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-roo Test oil ten		Rotational-speed (26) limitation intermediate speed			Starting idle switchir	. •	Torque- travel	Control rod
rev/min	cm³/1000 strokes	rev/min 4e	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
1250	100,0-102,0 (98,0-104,0)	1290-1300*	600	75,0-80,0 (72,5-82,5)	100	120,0-140,0 (116,0-144,0	-	-

Chucking values in brackets

* 1 mm less control rod travel than col. 2

9.84

J13

Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 MB 9.6 b

7. Edition

Eπ

PE 6 P 100 A 320 LS 818 Komb.-Nr. 0 401 876 183 1-6-3-5-2-4 RSV 350-1250 P0/810

supersede 2.83
company Daimler-Benz

engine 0M 401

141 kW (192 PS) (1) 129 kW (175 PS) (2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuei Injection Pump Settings

0-75-120-195-240-315° ±0,5° (±0,75°)

Port closing at prestroke

3,4-3,5 (3,35-3,55)

mm (from BDC)

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm /100 strokes 3	Difference cm ^{-/} 100 strokes 4	Control rod travel mm 2	Fuel delivery cm*/100 strokes	Spring pre-tensioning (forque-control valve) mm
1230	10,3+0,1	10,2-10,4	0,3(0,6)			
350	7,2-7,4	1,4-2,0	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Uppe Degree of	er rated speed	rev/min Control rod	Interme	diale rate	d speed	0	Lower	rated speed	(3) to	orque control
deflection of control lever	travel mm	travel mm rev/min				Control- lever deflection	rev/min	travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	in degrees 7	8	9	10	11
loose	800	0,3-1,0	-	-	-	ca. 34	350	7,3	-	-
	x <u>=</u>					j	350	7,2-7,4		
ca. 62	9,3 4,4 1400	1280-1290 1360-1380 0,3-1,7					500-5	50 = 2,0 **		

Set idle-speed auxiliary spring at 2 mm control-rod travel.

C. Settings for Fuel Injection Pump with Fitted Governor

	emp 40°C (104°F)	Rotational- speed limitat		iel delivery paracteristics	Starting (uel delivery 5	43 ld	e stop
rev/min	cm /1000 strokes 2	changed to) rev/min 3	rev/min 4	cm ¹ /1000 strokes 5	rev/min	cm 1000 strokes	rev/min 8	Control rod travel mm
1230 (1)	102,0-104,0 (100,0-106,0)	1280-1290*	-	-	100	140,0-160, (136,0 - 164	0 -	-
								y

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschaftsbereich KH-Kundendienst-Ktz-Ausrustung • 1980 by Robert Bosch GmbH, Postfach 50, D-7000 Stuttgart 1-Printed in the Federal Republic of Germany Imprime en République Féilérale d'Altemagne par Robert Bosch GmbH

(1) Upper	rated speed	l	Intermediate	e rated spe	ed	4 Lowe	r rated spo	(3) Torque control		
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel	Degree of deflection of control lever	rev!min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.63	1250 1350 1450	14,0 8,7 2,8	without	auxi!	liary spri	ca. 31 ng	350 100	5,9 19-21	-	-
ca.60	1250 1360 1430	ca.10,8 ca. 4,4 0,3-1,0	with au	ıxilia#	ry spring		350 450 500	5,6-6,2 0,9-3,1 0-1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Purnp with Fitted Governor

7 Full to	oad stop	6 Rotational speed limitat	(3a) Fuel delivery characteristics		Starting	fuel delivery	(5a) Idle stop	
Test oil terr rev/min t	op 40°C (104°F) cm*/1000 strokes 2	Note changed to rev/min 3	rev/min	cm ¹ /1000 strokes 5	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm 9
1230 (2)	93,0-95,0 (91,0-97,0)	1280-1290*	,	-	100	110,0-130,0	-	-
			6a)					

Checking values in brackets

Testowi 1: 0 4113

* 1 mm less control rod travel than cot 2

B. Governor Settings

Degree of deflection of control lever	rev/mir- 2	Control rod travel តា៣ 3	Intermediate Degree of deflection of control lever	•	ed Control rod travel mm	Degree of deflection of control lever	raled spe rev/min 8	control rod travel mm	que control Control rod travel mm 11
								·	
⑤							3		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full I	2 Full load stop 6 Rotational-speed limitat			el delivery aracteristics	Starting Idle	fuel delivery	(5a) Idle stop	
Test oil terr rev/min 1	op 40°C (104°F) cm³/1000 strokes 2	Note changed to rev/min 3	rev/min	cm ³ /1000 strokes 5	rev/min	cm ³ / 1000 strokes 7		Control rod travel mm 9
				,				

Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 MB 12,8 c 1

2. Edition

PE 8 P 100 A 320 LS 819 Komb.-Nr. 0 401 878 085

RSV 350-1250 P0/810 PQA 810

supersedes Daimler-Benz

1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je $45^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$

engine 256 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,4 -3,5 Port closing air prestroke (3,35 -3,55)

mm (from BDCZy1. 8

Rotations speed rev/min 1	Control rod travel mm 2	Fuel delivery cm*100 strokes 3	Difference cm ^{-/} 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ¹ /100 strokes 3	Spring pre tensioning (forque-control valve) mm
1230		10,0-10,2	0,3(0,6)			
350	7,4-7,6	1,5- 2,1	0,3(0,5)			
			l l			i

Adjust the fuel delivery from each outlet according to the values in E

B. Governor Settings

Degree of deflection of control lever	r raied speed Control rod travel mm		Interme	diate rated	speed 6	Control- lever deflection in degrees 7		rated speed Control rod travel mm	(3) To	rque control Control rod travel mm:
loose	B00 X #	0,3-1,0 5,0	-	***	-	ca.38	350	7,5 **	. ,	•
ca.66	9,2 5,0 1450	1260-1270 1330-1350 0,3 - 1,4					500-560	=2,0		

The numbers denote the sequence of the tests Set idle-speed auxiliary spring at 2 mm control-rod travel.

C. Settings for Fuel Injection Pump with Fitted Governor

(4)	## foad stop emp_40 'C (t04 'F)	Rotational Speed limital Speed			Starting (uel delivery 5	4a Idle stop	
rev/min	cm ¹ /1000 strokes	Note changed to) rev/min 3	rev/min 4	cm ¹ /1000 strokes 5	rev/min 6	cm/1000 strokes	rev/min 8	Control root travet /mm
1230	100,0-102,0 (98,0-104,0)	1260-1270*	-	-	100	110,0-130 (106,0-134	,0 -	-

Checking values in brackets

* 1 mm less control rod travel than cot 2

9.84

BOSCH

Geschaftsbereich KH. Kundendierst. Kfz-Ausrustung. - 1980 by Robert Bosch GmbH. Postfach 50. D-7000 Stuttgart 1. Printed in the Federal Republic of Germany mprime en République Fédérale d'Allemagne par Robert Bosch GmbH. estoil-ISO 4113

RSV 350-1250 PO/822

supersedes7 . 83 company Daimler-Benz OM 402

4. Edition

8 - 7 - 2 - 6 - 3 - 5 - 4 - 1 je 45" - 0,5" (-0,75°)

165 kW (224 PS)

Komb.-Nr. 0 401 878 107

PE 8 P 100 A 320 LS 819

and Governors

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(3.35 - 3.55)

mm (from BDC) 7v1 8

Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	cm ³ /	Control rod travel mm 2	Fuel delivery cm ² /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1230	9,6-9,7	8,7 - 8,9	0,3(0,6)			
350	7,5-7,7	2,1 - 2,5	0,3(0,5)			

Adjust the fue) delivery from each outlet according to the values in

B. Governor Settings

	rated speed		Intermediate	rated spe	ed	4 Lowe	rated spe	ed	3 Tor	que control
Degree of deflection of control		Control rod travel	Degree of deflection of control		Control rod travel	Degree of deflection of control	1	Control rod travel		Control rod travel
lever	rev/min	mm	lever	rev/min	mm		rev/min	mm .	rev/min	mm
1	2	3	4	5	6	7	8	9	10	11
loose	800	0,3-1,0	-	•	•	ca.31	350	7,6	1230	9,6+0,1
	x = 4	5					** 4 5 0-5	10 = 2.0	1050 850	9,9+0,2 10,3+0,2
€ ³ · 58	8,6 4,0 1450	1270-1280 1330-1345 0.3 - 1.4					430-3	10 - 2,0		

** Set idle-speed auxiliary spring at 2 mm control-rod travel. The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

2 Full-le	oad slop	6 Rotational- speed limitat.		el delivery tracteristics	Starting Idle	fuel delivery	5a Idle stop		
Test oil tem rev/min 1	cm ³ /1000 strokes 2	Note: changed to rev/min 3	rev/min 4	cm ³ /1000 strokes 5	rev/min	cm ³ /1000 strokes	rev/min	Control rod travel mm	
1230	87, 0-89, 0 (85, 0-91.0)	1270~1280*	800	84, 0-88, 0 (82, 0-90, 0)	100	110 - 130	-	-	

Checking values in brackets

* 1 mm less control rod travel than cot. 2

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MB 19,1 k

5. Edition

PE 12 P 110 A 320 LS 832 Komb.-Nr. 0 401 840 060

ROV 350-1150 PA 476 R

supersedes 12.83

company: Daimler-Benz OM 404 A

1- 5- 9- 8- 3 - 4 - 11- 10- 2 - 6 - 7 - 12 0-15-60-75-120-135-180-195-240-255-300-315° ± 0,5° (± 0,75°)

All test specifications are valid for Basch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

1130 12,8+0,1 13,4-13,6 0,4(0,8)	
1130 12,8+0,1 13,4-13,6 0,4(0,8)	
350 7,4-7,6 1,4-2,0 0,4(0,7)	

Adjust the fuel delivery from each outlet according to the values in g

B. Governor Settings

Upper rated	speed			Intermediate	rated sp	eed	Lower rated	speed		Siidina	iseve travel
Degree of deflection of control lever	rav/min Control rod travel mm	Control rod travel mm rev/min 3		Degree of deflection of control lever	rev/min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3	rev/min	mm 11
max. ca.66	1150 11,8 4,0 1450	1295-13	95 25	•	1	-	ca.18	350	min.8,6 7,0-7,2 75 = 2,0	580	0,9-1,1 3,5-3,8 5,2-5,5 7,8
							3				

C. Settings for Fuel Injection Pump with Fitted Governor

	d stop mp. 40°C (104°F) 2	intermediate speed	high idle s	rery characteristics (5e)	Idle	fuel delivery 6	Torque- travel	control (5) Control rod travel
rev/min	cm³/1000 strokes	rev/min 4e	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	
<u> </u>	2	3	4	5	6	7	8	9
LÙA	0,7 bar 134,0-136,0 (131,5-138,5)	1185-1195*	LDA 500 LDA 700	0 bar 121,0-123,0 (118,5-125,5) 0,7 bar 135,0-139,0 (132,0-142,0)		130,0-150,0 (126,0-154,0)		13,0+0,

Checking values in brackets

* 1 mm less control rod travel than col. 2

9.84

BOSCH

MB 19,1 k

Test at n =

500

rev/min decreasing pressure - ih bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel- difference
	Gauge pressure = ba	Gauge pressure = bar	mm (1)
PE 12 PLS 832	0,70		13,1 - 13,2
+ RQVPA 476 R		0	12,4 - 12,5
		0,39	12,9 - 13,0
		0,31	12,5 - 12,7

Notes

(1) when n

rev/min and gauge pressure =

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 MB 16.0 g t 1. Edition

Ea

Pž 10P100A320 LS 821-1 RQV 350-1250 PA 378-2 Komb.-Nr. 0 401 849 167

companyDaimler-Benz OM 403 engine: 235 kW

1 - 8 - 7 - 6 - 3 - 5 - 1 - 10 - 9 - 4 $0 - 27 - 72 - 99 - 144 - 171 - 216 - 243 - 288 - 315° <math>\stackrel{+}{=}0.5°$ ($\stackrel{+}{=}0.75°$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3.4-3.5

Port closing at pres	1770KB	5-3 55)	mm (from BDC)		<u> </u>	
Rotational speed rev/min	Control rod traval mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ² /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1230	10,1+0,1	9,7-9,9	0,3(0,6)			
350	7,4-7,6	1,5-2,1	0,2(0,5)			

Adjust the fuel delivery from each outlot according to the values in

B. Governor Settings

T}

Upper rated	speed			Intermediate	rated sp	bed		Lower rated	speed		Stiding	leeve travel
Degree of deflection of control lever	rev/min Controt rod travel mm 2	Control rod travel mm rev/min 3	(3) (3)	Degree of deffection of control lever	rev/min	Control ro travel mm 8	od ①	Degree of deflection of control lever	rev/min	Control rod travel mm 3	rev/min	0
max. ca.66	1250 9,1 4,0 1500	15,2-17, 1290-130 1360-139 0-1,0	00	1	•	•			350	7,6-7,8	300 520	,9-1,1 ,6-3,9 ,3-5,6 8,3

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de Control-ros Test oil ten		intermediate speed	high idle s	very characteristics (56)	Starting Idle switching	. •	Torque- travel	control 5
rev/min	cm³/1000 strokes	rev/min 40	rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	travet mm
1	2	3	4	5	8	7	8	9
1230	97,0-99,0 (95,0-101,0	1290-1300*	1230	75,0-77,0 (73,0-79,0) **	100	1300-150,0 (126,0-154,0)	-	•

Checking values in brackets

** Adjusted at the inner lever of the reduced-delivery stop

* 1 mm less control rod travel than col 2 9.84

BOSCH

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 19,1 m1 4. Edition

_En

PE 12 P 110 A 320 LS 832

RQV350-1150 PA 493 R

aupersedes 83 companDaimler-Benz OM 404 A engine 386 kW (525 PS)

Komb.-Nr. 0 401 840 067

1 - 5-9- 8 - 3 - 4 - 11- 10- 2 - 6 - 7 - 12

0 -15-60-75-120-135-180-195-240-255-300-315 $^{\circ}$ $^{+}$ 0 ,5 $^{\circ}$ ($^{+}$ 0 ,75 $^{\circ}$) All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel injection Pump Settings

Port closing at pres	stroke	(3.15.3.35)	mm (from BDC)	zy1.12;	RW = 9,0-1	12,0 mm
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-lensioning (torque-control valve) mm
1130	13,1+0,1	14,0-14,2	0,4 (0,8)			
350	7,5-7,7	1,8- 2,4	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	A)		Intermediate	rated ap	eed		Lower rated	speed		Clidian	
deflection of control	rev/min Control rod travel	Control rod travel mm		Degree of deffection of control		Control travel	rod	Degree of deflection of control		Control rod travel	Sildings	leeve travel
isver 1	mm 2	rev/min 3		lever 4	rev/min 5	mm 6	•	lever	rev/min	mm 3	rev/min	mm ::
max.	1180	15,2-17,	8	•	-	-		ca.18	100	min.8,6	300	1,0-1,2
ca.66		1185-119 1295-132 0 - 1,	5						350 690-	7,0-7,2 750= 2,0	600 850 1150	3,6-3,9 5, 2- 5,4 8 , 2
Torona contro								3 a		į		_

Torque controi travel a :

mr

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-root Test oil ten				idle	fuel delivery 6	Torque-control (5		
rev/min	cm ³ /1000 strokes	rev/min 4a)	rev/min 4	cm ³ /1 000 s trokes 5	rev/min	cm ³ /1000 strokes	rev/min i 8	Control re travel mm
LDA 1130	0,7 bar 140,0-142,0 (137,0-145,0)	1185-1195*	LDA 500 LDA 1130	0 bar 121,0-123,0 (118,0-126,0 0,7 bar 99,0-103,0 (96,0-106,0)	100	130,0-150,0 (126,0-154,0	-	

Checking values in brackets

* 1 mm less control rod travel than col 2

estatn 500	rev/min decreasing pressure - in	and Banda brooms		MB 19,1 m
Pump/governor	Setting	Measurement	diminution Control rod travel- difference	
	Gauge pressure bar	Gauge pressure = bar	mm (1)	
PT 12 P., LS 832	0,70		13,1-13,2	
+ PA 493 R		0 40	12,3-12,4	
		0,40 0,33	12,9-13,0 12,5-12,7	
				ŀ
	1			

har (maximum full-load control rod travel)

rev/min and gauge pressure

: (1) when n

^{**} Adjusted at the inner lever of the reduced-delivery stop

Test Specifications Fuel Injection Pumps (A) and Governors

WPP 001/4 DEE 7,6 g 1. Edition

En

US-PES 6 P 110 A 720 RS 3083

Komb.-Nr. 9 400 231 175

US-RSV 400-1050 P2/488-1

supersedes -

John Deere

6466 A

All lest specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

3,45-3,55 Port closing at prestroke (3,40-3,60)

mm (from BDC)

Rotational speed rev/min 1	Control rod travel	Fuel delivery cm ¹ /100 strokes 3	Oifference cm ^{-//} 100 strokes	Control rod travel mm	Fuel delivery cm/100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1050	11,5(),1	14,8-15,0	0,4(0,75)			
400	5,9-6,1	1,4-2,0	0,4(0,75)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of dellection of control lever	r rated speed Control rod travel mm		Intermed	hate rated	speed	Control- lever deflection in degrees 7	Lower rev/min 8	rated speed Control rod travel mm	3 To	rque control Control rod travel mm
lose	800 X=	0,3-1,0	-	-	•	ca.22	400 100	5.5 min.19,0	1050 700	11,5-11,6 12,3-12,6
ca.44	10,5 4,0 1300	1095-1105 1170-1200 0,3-1,7					400 625-68	5,9-6,1 5=2,0	500	9,8- 9,9

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	emp 40°C (104°F)	Rotational Speed limitat Speed limitat Rote			Starting f	uel delivery 5	4a) Idle stop	
i	cm ¹ /1000 strokes	changed to) rev/min 3	rev/min	cm //1000 strokes 5	rev/min	cm ¹ /1000 strokes 7	rev/min 8	Control rod travel mm
LDA 1050	1,2 bar 147,5-149,5 (144,5-152,5)	1095-1105*	LDA 700 LDA 500	1,2 bar 160,0-166,0 (158,0-168,0) 0 bar 99,0-103,0 (96,0-106,0)	100	160,0-190	0 400	6,0

Checking values in brackets

* 1 mm less control rod travel than col 2

Test at n = 500	rev/min decreasing pressure - in	bar gauge pressure	DEE 7,6 g
Pump/governor	Setting Gauge pressure — bar	Measurement Gauge pressure = bar	Control rod travel difference
US-PES6PRS3083 +US-RSVP2/486-1	0,50	0,26	11,9-12,0 10,3-10,7

Notes (1) when n

rev/min and gauge pressure

bar (maximum full-load control rod travel)

-2-

** Setting without a compensating spring retainer at 1 mm contro-rod travel less. Boosting of the full load fuel delivery with the compensating spring retainer to 11.5 mm control-rod travel.

2

Testor-SO

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 KHD 9,6 n
1. Edition

En

PES 6 P 110 A 720 RS 3104 Komb.-Nr. 0 402 046 759

RQ 900 PA 738

supersedes

company KHD

engine:

BF 6 L 413 FR/C

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2.75-2

mm (from BDC)

RW = 9,0-12,0 mm

Rotational speed rev/min		Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes	Spring pre-tensioning (torque-control valve) mm
850	12,6+0,1	14,7-14,9	0,4(0,75)			
300	6,7-6,9	1,3-1,9	0,45(0,75)		
				,		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of st PRG check	1	Full-load : Setting po	oint	Test spe	decifications 4 Setting point Test specifications (5)			Torque control			
rev/min trave	ol rod	rev/min 3	red travel rmm	Cantral red travel mm 5	rev/min 6	rev/min 7	Control red travel		Control rod travel mm		Control rod
-	•	-	•	11,6 5,5 1050	900-905 936-945 0-1,0	-	1	-	-	-	-

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

900-905 min-1 1 mm less control

rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor (delivery on control lever mp 40°C (104°F)	Control rod stop	3	Fuel deliv	ery characteristics	3 b)	Starting f	uel delivery d Control
rev/min 1	cm³/~1000 strokes 2	rev/min 3		rev/min 4	cm ³ /-1000 strokes 5		rev/min 6	cm ³ /1000 strokes:/ mm
850	147,0-149,0 (144,0-152,0)	-		- -	-		-	-

Checking values in brackets

9.84

K1

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 y 2. Edition

En

PE 6 P 110 A 720 RS 3115

RQV 200-1100 PA 468

supersed 6.83 companySaab Scania

Komb.-Nr. 0 401 846 764

Please note instructions on sheet 2.

engine DN 11 01

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel injection Pump Settings

Port closing at pres	troke	3,3-3,4 (3.25-3.45)	mm (from BDC)	mm (from BDC)								
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 stroke- 3	Spring pre-tensioning (torque-control valve) mm 6						
600	12,4+0,1	11,9-12,1	0,5(0,8)			3,3 [±] 0,1						
225	5,4-5,6	2,0-2,4	0,2(0,4)			(3,0-3,5)						

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	peed			Intermediate	rated sp	eed	Lower rated	speed	Lower rated speed			
Degree of deflection of control lever	rev/min Conirc! rod travel mm	travel (Degree of deflection of control lever		Control rod travel mm (4)	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	leeve travel	
1	3	3		4	5	6	7	8	9	10	11	
max.	1120	15,2-17	,8	-	-	-	ca. 11		min.6,9	150	0 -0,3	
ca. 61	11 ,4 4,0 1400	1140-11 1250-12 0 - 1					3 a)	225 3 3 0-3		470 780 1100	3,6-4,2 5,6-5,8 8,3	

Torque control travel e =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Control-ro	politional delivery pontrol-rod stop past oil temp. 40°C (104°F) (2) Rotational-speed (2b) Fuel delivery high idle appearance intermediate speed				Starting Idle switchli	• . •	Torque- travel	control S
rev/min 1	cm ³ /1000 strokes . 2	rev/min 49	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
600	119,0-121,0 (117,0-123,0			119,5-124,5 (11 7 ,0-127,0)	100	230,0-280,0 = 20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.84

BOSCH

leschäftsbereich KH. Kundendienst, Kfz-Ausnistung : by Robert Bosch GmbH, D-7 Stuttgarl 1, Posifach 80 Printed in the Federal Republic of Germa nodmå en Rapublique Faddratu d'Allemagne par Robert Bosch GmbH

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on Aug. 22, 1983
- Start of fuel delivery-engine: 21° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 SCA 11,0 y 1 2. Edition

En

PE 6 P 110 A 720 RS 3115

RSV 350-1100 P 1/481

supersedes 6.83

company Saab-Scania

Komb.-Nr. 0 401 876 728

Please note instructions on sheet 2.

engine DN 1101

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

A.A.

Testoil-ISO

(3.25-3.45)

mm (from BDC)

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min I	mm (2)	cm1/100 strokes 3	100 strokes	mm 2	cm //100 strokes	mm 6
600	12,4+0.1	11,9-12,1	0,5(0,8)			3,3 [±] 0,1
350	5,4-5,6	2,0-2,4	0,2(0,4)			(3,0-3,5)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

	r rated speed		Interme	diate rated	speed	(4)	Lower	raled speed	(3) To	rque control
Degree of deflection of control fever	Control rod travel mm	Control rod travel mm rev/min 3	4	5	6	Controt- tever deflection in degrees 7	rev/min 8	Control rod travel mm	rev/min	Control rod travel mm
loose	800 X =	0,3-1,0 5,75	-	•	-	ca. 30	350	5,0	-	-
ca. 66	11, 4 4,0 1350	1140-1150 1210-1240 0,3-1,7					350 480-54	5,4 - 5,6 0 = 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

6	emp 40°C (104°F)	6 Rotational- speed limitat	39 E	iel delivery naracteristics	Starting I	luel delivery 5	4a Idle stop		
rev/min	cm/1000 strokes	Note changed to) rev/min 3	rev/min	cm ¹ /1000 strokes 5	rev/min 6	cm ³ /1000 strokes 7	rev/min 8	Control root travel mm	
600	119,0-121,0 (117,0-123,0)	1140-1150*	1100	119,5-124,5 (117,0-127,0)	100	230,0-280 = 20,0-21 mm RW		-	

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschäftsbereich KH. Kundendienst. Kfz-Ausrustung.
< 1980 by Robert Bosch GmbH. Postfach 50. D-7000 Stuttgart 1. Printed in the Federal Republic of Germany imprime en République Fédérale d'Allemagne par Robert Bosch GmbH.

SUPPLEMENTARY INFORMATION

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on Aug. 22, 1983

- Start of fuel delivery-engine: 21° before TDC

- Firing sequence, engine : 1-5-3-6-2-4

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 MB 14,6 d

5. Edition

PE 8 P 110 A 320 LS 3802

RO 300/1150 PA 187-4

supersede 9.83

Komb.-Nr. 0 401 848 714

company: Daimler-Benz

OM 422

1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je $45^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$

184 kW (250 PS)

See Service Information VDT-I-401/102

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Yesters

A. Fuel Injection Pump Settings

Port closing at prestroke

4.00-4.10

mm (from BDCZyl. 8

Rotational speed 18v/min 1	Control rod travel mm 2	Fuel delivery # cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travet mm 2	Fuel delivery * cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,6+0,1	10,9-11,1	0,4(0,8)	11,6+0,1	11,3-11,5	
300	8,3-8,5	1,1-1,7	0,4(0,7)	8,3-8,5	1,1-1,7	
*	with ret	urn throttle (1	}	*	without return	throttle (2)
		·			! !	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che		Setting point Central Central Control Control Control Control				Control rod					
rev/min 1		rev/min 3	mm 4	mm 5	rev/min 6	rev/min 7	red travel mm 8	rev/min 9	travel mm 10	rev/min	travel mm 12
650	13,2-14,0	650	13,6		1190-1205 1235-1265 0-1,0	300	7,7	300	min.9,3 7,6-7,8 450=2,0	-	•

Torque control travel on flyweight assembly dimension a =

Speed regulation: At 190-1205 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	Full-load delivery on povernor control lever fest oil temp. 40°C (104°F)		Control rod stop	39	Fuel deliv	ery characteristics	Starting f	uel delivery d Confin
rev/min 1	cm³/-1000 strokes 2		rev/min 3		rev/min 4	cm ³ /-1000 strokes 5	rev/min 6	cm ³ /1000 strokes/ mm 7
1150	109,0-111,0 (106,0-114,0)		600		600	94,0-98,0 (91,0-101,0)	100	130,0-150,0

Checking values in brackets

8.84

BOSCH

(undendienst. Kfz-Ausrüstung. h GmbH. Postfach 50, D-7000 Stuttgart 1. Printed in the Federal Republic of Germany. Fédéral» d'Allemagne par Robert Boach GmbH.

Checkin PRG che	g of slider ck (1)	Full-load Setting p		_	cifications (4)	idle spe			cifications (5)	Torque (
rev/min	Control rod travel mm	rev/min 3	Control red travel crition 4	Control red travel rnm 5	rev/min 6	rev/min 7	Control red travel		Control rod travel mm	fev/min	Control rod travel mm
650	13,2-14,0	650	14,0		1190-1205 1235-1265 0-1,0	300	7,7	300	min.9,3 7,6-7,8 450≈2,0	-	-
											Ċ,

Turque control travel on flyweight assembly dimension a

Speed regulation A 190-1205 min-1

1 mm less control

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp 40°C (104 F)	Control rod stop 3a	Fuel deliv	rery characteristics	Starting Idle spe	
rev/min 1	cm*/-1000 strokes 2	rev/min 3	rev/min	cm '/- 1000 strokes 5	rev/min	Cm ⁴ /1000 strokes / mm
1150 (2)	113,0-115,0 (110,5-117,5)	600	600	94,0-98,0 (91,0-101,0)	100	130,0-150,0 (126,0-154,0)
	Alues in brackets					

Testoil-ISO 4113

B. Governor Settings

Checkin	g of slider ck	Full-load s			cifications (4)	Idle sper	_	cifications (5)	Torque control 3		
rev/min	Control rod travel mm 2	rev/min	Control rod travel rmm	Control rod travel rnm 5	rev/min		Control rod travel	Control rod	rev/min	travel	<u>s)</u>
					**************************************					11 1 2000 00 000	

forque-control travel on flyweight assembly dimension a

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp 40°C (104 F)	Control rod stop	Control rod stop [3a] Fuel delivery characteristics		Starting fi Idle spee	uel delivery d Contra
ev/min	cm ¹ /-1000 strokes 2	rev/min 3	rev/min	cm 1/- 1000 strokes 5	rev/min	cm ¹ /1000 strokes / mm

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 MB 21,9 f

company Dâimler-Benz

OM 424 A

1. Edition

supersedes

 $(\pm 0.75^{\circ})$

PE 12 P 120 A 320 LS 3825 ROV 350-1050 PA 693

1 - 5 - 9 - 8-3 - 4 - 11- 10- 2- 6- 7- 12 0 - 15 - 60 - 75-120-135-180-195-240-255-300-315° ± 0,5°

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test

tubing 1 680 750 067
All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke	3.95-4.15)	mm (from BDC)			•
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	100 strokes	mm 2	cm ³ /100 strokes 3	mm 6
1050	9,7-9,8	14,8-15,0	0,5(0,9)			
350	4,5-4,7	1,4-2,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated t	speed	1	Intermediate	rated sp	eed	Lower rated	speed		Stiding	leave travel
Degree of deflection of control lever	rod travel	Control rod travel mm rev/min 29	Degree of deflection of control lever	rev?min 5	Control rod travel mm 4	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3	rev/min	mm
max.	1180	15,2-17,8	-	•	-	ca.12	100 350	min.6,2 4,5-4,7	300 550	1,0-1,2 3,4-3,6
ca. 58	8,7 4,0 1300	1085-1095 1165-1195 0-1,0				3 a)			800 1050	4,8-5,0 7,1

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-roa Test oil ten		Rotational-speed 2b limitation intermediate speed	Fuel deli- high idle s	very characteristics (5e)	Starting idle switchli	• . •	Torque- travel	control (5)
rev/min	cm³/1000 strokes .	rev/min 4	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 atrokes	rev/min	travel mm
1	2	3	4	5	6	7	8	9
LDA 1050	0,7 bar 148,0-150,0 (145,0-153,0		LDA 600 LDA 500	0,7 bar 146,0-152,0 (143,0-155,0) 0 bar 128,0-130,0 (125,0-133,0)		150,0-170,0 (146,0-174,0)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

0

K8

D. Adjustment Test for Manifold Pressure Compensator

MB 21,9 f

- 2 -

Test at n

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure bar	Gauge pressure = bar	mm (1) .
PE 12 PLS 3825 +RQVPA 693	0,70	0 0,36 0,32	9,7-9,8 9,3-9,5 9,5-9,6 9,4-9,6

Notes

(1) when n

rev/min and gauge pressure =

bar (maximum full-load control rod travel)

K9

estoil-ISO 411

Test Specifications Fuel Injection Pumps 1 and Governors

WPP 001/4 SCA 14,2 a 3

4. Edition

PE 8 P 120 A 920/4 LS 7002 RQV 250-1000 PA 547

1-2-7-3-4-5-6-8 je $45^{\circ} + 0.5^{\circ} (+ 0.75^{\circ})$

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes5.83 company: Scania engine DS 14 06

Komb.-Nr. 0 402 648 801

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings
a5 FD 141: 5,0 - 5,1

Port closing at prestroke (4,95 - 5,15) mm (from BDC) bis FD 052: 4,4 - 4,5

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700 225	13,2+0,1 4,9-5,	18,7 - 18,9 1,0 - 1,4	0,6(0,9) 0,3(0,6)			$3,3 \pm 0,1$ $(3,0 - 3,5)$

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated s	speed			Intermediate	rated sp	ed	Lower rated	speed		Sliding s	leeve travel
deflection	revimin Control	travel	וכ	Degree of deflection		Control rod travel	Degree of deflection		Control rod travel	Silving 2	0
of control lever	rod travel	rev/min		of control lever	rev/min	mm (4)	of control lever	rev/min	mm (3)	rev/min	mm
1	2	3		4	5	6	7	8	9	10	11
max.	1000	15,2-17	.8	-	-	-	ca. 10	100	min.5,9	200	1,0-1,2
ca. 60	12,2	1040-10	50					225	4,4-4,0	470	3,3-3,8
	4,0	1150-118	80					310-3	70=2.0	730	5,1-5,3
	1000	0 - 1,	,0							1000	7,7
							3				

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil te		Ilmitation intermediate speed	Fuel deli- high idle :	very characteristics (5e speed (50)	Starting Idle switchir		Torque- travel	Control rod
rev/min	cm³/1000 strokes	rev/min 49	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	
1	2	3	4	5	6	7	8	9
LDA	0,9 bar	1040-1050*	LDA	0,9 bar	100	240,0-290,0	-	-
700	187,0-189,0 (184,0-192,0)		1000	183,0-191,0 (181,0-193,0)		bei 20,0-21, mm RW	0	
			LDA	0 bar		***************************************		
			500	B7,0-141,0				
				(135,0-143,0)				

Checking values in brackets

f mm less control rod travel than col. 2

10.84

D. Adjustment Test for Manifold Pressure Compensator

SCA 14,2 a 3

Testain =

re...min der 2500 pressure – in bar gauge pressure

Pump/governor	Setting	Measurament	Control rod (ANA) Adjustion
	Gauge pressure =	bar Gauge pressure =	bar mm (1)
LS 7002 RQVPA 547	0,9 bar	0 bar 0,23 bar 0,35 bar	13,2 - 13,3 11,3 - 11,4 11,9 - 12,1 12,8 - 12,9

Notes

(1) when n :

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

SUPPLEMENTARY INFORMATION

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDI-1-400/116
- For sealing, see VDI-1-400/117
- Test specifications approved by Scania on Aug. 19.8.1983
- Start of fuel delivery-engine: 18

18° before TDC

- Firing sequence, engine

1-5-4-2-6-3-7-8

^{**} Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 70 2,9 - 3,1 mm.

Testo: So

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 14,2 a 1

3. Edition

PE 8 P 120 A 920/4 LS 7002 8 RQV 250-1050 PA 547

1-2-7-3-4-5-6-8 je $45^{\circ}-0.5^{\circ}(-0.75^{\circ})$ Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedeb - 33 company Saab-Scania DS 1407 Konib - Nr. 0 402 648 802

All test specifications are valid for Boach Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres Rotational speed rev/min 1	Control rod travel mm	5,0-5,1 (4,95-5,15) Fuel delivery cm ³ /100 strakes 3	mm (from BDC) Difference cm³/ 100 strokes 4	Control rod travel	4,4-4,5 mm (4,35-4,55) Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (forque-control valve) mm
700	13,0+0,1	18,3-18,5	0,6(0,9)		7	3,3+0,1
225	4,4-4,6	1,0~1,4	0,3(0,6)			(3,0-3,5) * *

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated to Degree of deflection of control lever		Control rod (a) travel mm rev/min (2a)	Degree of deflection of control	Degree of Control rod travel			speed rev/min 8	Control rod travel mm 3 rev/min		mm
max. ca. 62	1050 12,0 4,0 1350	15,2-17,8 1090-1100 1195-1225 0-1,0	•	ı	-		100 225	min.5,9 4,4-4,6 70=2,0	200 500 800 1050	1,0-1,2 3,9-4,4 5,6-5,8 7,7

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load of Control-ro Test oil te	d stop	Rotational-speed (2b) irmitation intermediate speed	Fuel delic high idle s	rery characteristics (5a)	Starting Idle switchir	• . •	Torque- travel	Control roo
rev/min 1	cm³/1000 strokes 2	rev/min 49	røv/min 4	cm ³ /1000 strakes	rev/min	cm³/1000 strokes 7	rev/min 8	travel mm
LDA 700	0,9 bar 183,0-185,0 (180,0-188,0)	1090-1100*	LDA 1000 LDA 500	0,9 bar 176,0-184,0 (174,0-186,0) 0 bar 137,0-141,0 (135,0-143,0)		240,0-290,0 =20,0-21,0 mm RW	1	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.84

K12

BOSCH

D. Adjustment Test for Manifold Pressure Compensator

SCA 14.2 a 1 -2-

Yest at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1)
PE 8 P LS 7002 +RQV PA 547	0,90	0 0,35 0,23	13,0-13,1 11,3-11,4 12,8-12,9 11,9-12,1
,			, .

Notes

(1) when n ~

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-1-400/116
- For sealing, see VDI-1-400/117
- Test specifications approved by Scania on Aug. 19.8.1983
- Start of fuel delivery-engine:
- 18° before TDC
- Firing sequence, engine
- 1-5-4-2-6-3-7-8
- ** Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 70 2,9 3,1 mm.

Test Specifications Fuel Injection Pumps (A) and Governors

WPP 001/4 SCA 14,2 e

2. Edition

PE 8 P 120 A 920/4 LS 70/02-1

RSV 350-1050 P 1/504

Seab-Scania company DS 14 42

1-2-7-3-4-5-6-8 je 45° $^{\circ}$ 0,5° ($^{\circ}$ 0,75°) Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test

Komb.-Nr. 0 402 678 801

tubing 1 680 750 015
All test specifications are valid for Boych Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Fump Settings

5,0-5,1 4.95-5,15

mm (from BDC)RW=9.0-12.0 mm

Please note instructions on sheet 2.

Port closing at prestroke W

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre tensioning (torque-control valve)
rev/min 1	mm (2)	cm/100 strokes 3	cm³/ 100 strokes 4	mm 2	cm ¹ /100 strokes	mm 6
700	13,2+0,1	18,7-18,9	0,6(0,9)			
350	4,4-4,6	1,4-1,8	0,3(0,6)			
		٠			•	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Degree of deflection of control lever	er rated speed Control rod travel mm		interme	ediale rate	d speed	Control- lever deflection in degrees 7	Lower rev/min B	rated speed Control rod travel mm	3 To	Control rod travel mm
lose	800 x =	0,3-1,0 6,0	-	-	-	ca.30	350 350	4,0 4,4-4,6	-	•
ca. 64	12,2 4,0 1250	1090-1100 1160-1190 0,3-1,7					440-50	0 = 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

	emp 40°C (104°F)	6 Rotational- speed limitat		uel delivery haracteristics	Starting Idle	fuel delivery 5			
rev/min 1	cm ¹ /1000 strokes 2	changed to) rev/min 3	rev/min 4	cm ¹ /1000 strokes 5	rev/min 6	cm ¹ /1000 strokes 7	rev/min 8	Control rod travel mm	
700	187,0-189,0 184,0-192,0)	1090-1100*	1050	183,0-191,0 (181,0-193,0)	100	240,0-290, =20,0-21,0 mm RW		•	

Checking values in brackets

* 1 mm less control rod travel than col. 2

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on Okt. 5, 1983
- Start of fuel delivery-engine: 18° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

WPP 001/4 SCA 14,2 b 1 4. Edition

PE 8 P 120 A 920/4 LS 7003 RO 750 PA 528 1 - 2 - 7 - 3 - 4 - 5 - 6 = 8 je $45^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$ Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tuhing 1 680 750 015

supersedes5.83 company Saab-Scania DS 1441, DSI14 42 Komb.-Nr. 0 402 648 803

> 1 mm less control rod travel

Please note instructions on sheet 2.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings
ab FD 141: 5,0-5,1
Port closing at prestroke (4,95-5,15) m

mm (from BDC)

bis FD 052: 4,4 - 4,5 mm

Rotational speed	Control rod travel	Fuel delivery cm³/100 strokes	Difference cm³/ 100 strokes	Control rod travel	(4,35-4,5 Fuel delivery cm³/100 strakes	Spring pre-tensioning (torque-control valve)
700	12,8+0,1	18,7-18,9	0,6 (0,9)	2	3	3,3 ± 0,1 (3,0 - 3,5)
		·				

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

on flyweight assembly dimension a =

PRG che		①	Full-load : Setting po	oint	l'ést spe	cifications (4)	Idle spec			cifications (5)	Torque	control
	Control rod travel mm 2		rev/min 3	Control riid travel rnm 4	Centrel red travel rnm 5	rev/min 6	rav/min 7	Control rad travel rmm 8	rev/min 9	Control rod	rev/min	travel
-	-		-	•	11,8 4,0 850	750-755 784-797 0-1,0	•	-	•	-	æ.	•
- <u> </u>	ontroi travel								750	755 min=1		

C. Settings for Fuel Injection Pump with Fitted Governor

delivery on control lever mp. 40°C (104°F)	Control rod stop (3a)	Fuel deliv	ery characteristics		fuel delivery ed 6
cm ³ /-1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes	rev/min	Centrel red travel cm³/1000 strokes:/ mm 7
187,0-1 89,0 (184,0-192,0)	-	-	-	100	240,0-290,0 = 20,0 - 21,0
		High	idle speed		mm RW
		Dispe	rsion: 4,0 (7,0)		
	control lever inp. 40°C (104°F) cm³/-1000 strokes 2 187,0-189,0	control lever (2) (3a) cm³/-1000 strokes rev/min 3	control lever (2) (3a) rev/min (3a) rev/min (187,0-189,0) (184,0-192,0)	control lever mp. 40°C (104°F) cm³/-1000 strokes 187,0-189,0 (184,0-192,0) light idle speed Dispersion:	Control lever Control leve

9.84

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-1-400/117
- Test specifications approved by Scania on Aug. 19, 1983
- Start of fuel delivery-engine: DS 14-18° before TDC; DSI 14-17° before TDC
- Firing sequence, engine : 1-5-4-2-6-3-7-8
- ** Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 70 2,9 3,1 mm.

WPP 001/4 SCA 14.2 b 3. Edition

PE 8 P 120 A 920/4 LS 7003

RO 900 PA 528

supersede 5 . 83 company Saab-Scania

1-2-7-3-4-5-6-8

je 45 ° ±0,5° (±0,75°) Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test

DS 14 41, DSI14 42 DSI14 43

tubing 1 680 750 015

Komb.-Nr. 0 402 648 804

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Please note instructions on sheet 2.

Fuel Injection Pump Settings

Port closing at prestroke (4 95-5 15)

bis FD 052: mm (from BDC)

4,4-4,5

	17	, 33-3, 13,			(4,35-4,5	ວ <i>)</i>
Rotational speed rev/min 1	Control rod travel mm	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-ter-sioning (torque-control valve) mm 6
850	12,8+0,	18,6-18,8	0,6 (0,9	•		3,3 ±0,1 (3,0-3,5)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin PRG che		\bigcirc	Full-load : Setting po		-	cifications (4)	Idle spe			cilications (5)	Torque	control 3
rev/min 1	Control rod travel mm 2		rev/min 3	Control rod travel mm 4	Control rad travel rn.rn 5	rev/min	rev/min 7	Control rad travel		Control rod travel mm	rev/min	travel
•	-		•	1		900-905 941-955 0-1,0	-	-	-	•	•	•
orgue-c	ontrol travel							9	00-90	5 min 1		1 mm less contr

Torque-control travel on flyweight assembly dimension a =

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp. 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics 3b	Starting I	ruel delivery
rev/min	cm ¹ /~1000 strokes 2	rev/min 3	rev/min 4	cm ³ /-1000 strokes	rev/min	comes red travel cm ³ /1000 strokes/mm
850	186,0-188,0 (183,0-191,0)	-	- High Dispe	- idle speed rsion: 4,0 (7,0)	100	240,0-290,0 = 20,0-21,0 norm RW

Checking values in brackets

9.84

K18

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on Aug. 19, 1983
- Start of fuel delivery-engine: DS 14-18° before TDC; DSI 14-17° before TDC
- Firing sequence, engine : 1-5-4-2-6-3-7-8
- ** Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 70 2,9 3,1 mm.

Test Specifications Fuel Injection Pumps 2 and Governors

WPP 001/4 SCA 14,2 b 2 3. Edition

PESP 120A 920/4 LS 7003 RO 1050 PA 528 1-2-7-3-4-5-6-8 je 45° ±0,5° (±0,75°) Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes 5.83 Saab-Scania company DS 14 41, DSI 14 43 Komb.-Nr. 0 402 648 805

Please note instructions on sheet 2.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

ApFyeldnjection Rump Settings is FD 052: -Port closing at prestroke (4,95-5,15)

4.4-4.5 mm (4.35-4.55)

					(.,00 4,00)	
Rotational speed rev/min	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel de/ivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm
1000	12,8+0,	1 19,9-20,1	0,6(0,9)			3,3 ±0,1 (3,0-3,5) **

mm (from BDC)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check	Full-load sp Setting poir			cifications (4	 ed regula	cifications (E)	Torque	
Control rod travel mm	C	Control ad travel mm	Control rad travel mm 5	rev/min 6 1050=1055 1098-1113 0-1,0	Control red travel	Control rod travel mm	rev/min 11	Control rod travel mm

Torque-control travel on flyweight assembly dimension a =

1050-1055 mm '

1 mm less control

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load de governor c Test oil ten		2	Control rod stop	33)	Fuel delive	ery characteristics	36)	Starting f	uel delivery d Contra
rev/min	cm³/-1000 strokes		rev/min 3		rev/min 4	cm ³ /=1000 strokes 5		rev/min 6	cm ³ /1000 strokes / mm
1000	199,0-201,0 (196,0-204,0)		-		-	•		100	240,0-290,0 = 20,0-31,0 mm RW
					High	idle speed			
					Dispe	rsion: 4,0 (7,0))		

Checking values in brackets

9.84

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-1-400/116
- For sealing, see VDT-1-400/117
- Test specifications approved by Scania on Aug. 19, 1983
- Start of fuel delivery-engine: DS 14-18° before TDC; DSI 14-17° before TDC
- Firing sequence, engine : 1-5-4-2-6-3-7-8
- ** Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 70 2.9 3.1 mm.

Testoil-ISO 4113

2

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 SCA 11.0 v

4. Edition

PE 6 P 120 A 720 RS 7004 RO 750 PA 528 Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tuhing 1 680 750 015

supersedes 5.83

company SAAB-SCANIA DS 1143, 44, 45 DSI11 42, 45

Komb.-Nr. 0 402 646 803

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings
ab FD 141: 5,00-5,10
Port closing at prestroke (4,95-5,15) mm (from BDC)

bis FD 052: 4,40-4,50 (4.35-4.55)

		(4,95-5,15)		g.o	(4)22-4	227
Rotational speed	Control rod travel	Fuel delivery	Difference cm ³ / 100 strokes	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
1	2	3	4	2	3	6 l
700	12,840,	20,9 - 21,1	0,6(0,9)			3,3 ± 0,1 **
						(3,0-3,5)
					1	
	j		1		1	1 1

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	g of slider	Full-load:	speed re	gulation		Idle spec	ed regula	ation		Torque (control
		Setting pi	pint	Test spe	cifications	Setting p	oint	Test spe	cifications		
ev/min	Control rod travel mm	rev/min	Control red travel mm	rev/min	Control rod travel mm	rev/min	Control rod travel rmrn		Control rod travei mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11	12
•	-	-	-	11,8 4,0 850	750-755 784-797 0 - 1,0	-	-	-	-	-	-
		,									,

Torque control travel on flyweight assembly dimension a

Speed regulation A750-755 min-1

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	lelivery on control lever np 40°C (104 F)	Control rod stop	Fuel deliv	ery éñaracteristics	Starting fuel delivery		
rev/min	cm*/- 1000 strokes	rev/min 3	rev/min 4	cm ⁻¹ /- 1000 strokes 5	rev/min 6	cm 1/100 strokes	
700	209,0 - 211,0 (206,0 - 214,0)	-		idle speed rsion: 4,0 (7,0)	100	240 - 290 = 20,0-21,0 mm RW	

Checking values in brackets

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9.84

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-1-400/116
- For sealing, see VDT-1-400/117
- Test specifications approved by Scania on Aug. 18. 1983
- Start of fuel delivery-engine: DS 11-17° before TDC; DSI 11-16° before TDC
- Firing sequence, engine : 1-5-3-6-2-4
- ** Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 70 2,9 3,1 mm.

2

Test Specifications Fuel Injection Pumps 2 and Governors

40

WPP 001/4 SCA 11,0 v 4 1. Edition

En

PE 6 P 120 A 720 RS 7004

RQ 750 PA 528-1

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes Company SAAB-SCANIA Engine DN 11

Komb.-Nr. 0 402 646 815

0 4413

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

(4,95-5,15)

mm (from BDC)

Rolational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm ³ /100 strokes	100 strokes	mm	cm ³ /100 strokes	mm
1	2	3	4	2	3	6
700	10,6+0,1	15,5-15,7	0,6(0,9)			3,3 ± 0,1 **
						3,0-3,5)
** Due to	smoothir	g of the seali	ng edge, t	he spring	tension with a	
new de	livery-va	ive holder mus	t be adjus	ted to 2,	9-3,1 mm.	

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slid	ler	Full-load s Setting po	•	-	cifications (4)	ldle spec	•		cifications (5)	Torque o	control 3
rev/min mm		rev/min 3	Control rad travel rnm 4	Centrel red travel rnm 5	rev/min		Control rad travel		Control rod travel	rev/min	travel
-	-	•	ı	9,6 4,0 850	750-755 773-792 0-1,0	1	•	-	-	•	-

Torque control travel on flyweight assembly dimension a =

Speed regula

750-755 min-1

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	letivery on control lever mp 40°C (104°F)	Control rod stop 3a	Fuel deliv	ery characteristics	Starting fuel delivery Idle speed		
rev/min	cm³/-1000 strokes	rev/min 3	rev/min 4	cm ³ /-1000 strokes 5	rev/min	Config rad travel cm ³ /1000 strokes / mm	
700	155,0-157,0 (152,0-160,0)	-		- idle speed rsion: 4,0 (7,0)	100	240-290 = 20,0-21,0 mm RW	

Checking values in brackets

9.84

K24

Testoil-1SC 4113

Test Specifications Fuel Injection Pumps (2) and Governors

WPP 001/4 SCA 11,0 v 2 3. Edition

PE 6 P 120 A 720 RS 7004

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tuhing 1 680 750 015

supersed 5.85 Saab-Scania

Please note instructions on sheet 2.

DS 11 43, 44, 45 DSI11 42, 45

Komb.-Nr. 0 402 646 804

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

bis FD 052:

4,4-4,5 mm (4.35-4.55)

Port closing at prest	troke	(4,95-5,15)	mm (from BDC)		(4,35-4,55)
Rotational speed rev/min t	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm³/ 100 strokes	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	12,8+0,	20,7 - 20,9	0,6(0,9)			3,3 ±0,1 (3,0-3,5) **

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking PRG chec		\sim 1	Full-load s Setting po			cifications (4)	Idle spec	-	Test spe	cifications (5)	Torque d	control	(3)
	Control red Travel mm 2		rev/min 3	Control red travel rnm 4	Central rad travel rnm 5	rev/min	rev/min 7	Control rad travel mm	rev/min 9	Control rod		Control rod travel mm	•
-	•		•	•		900-905 941-955 0-1,0	•	1	•	•	•	•	

Torque-control travel

900-905 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

governor	delivery on control lever mp 40°C (104°F)	Control rod stop	Fuel deliv	ery characteristics	3	Starting t	luel delivery
revimin 1	cm³/-1000 strokes 2	rev/min 3	rev/min	cm ³ /-1000 strokes 5		rev/min 6	contained travel cm ³ /1000 strokes/mm
850	207,0-209,0 (204,0-212,0)	-	-	-		100	240,0-290,0 = 20,0-21,0 mm RW
			High	idle speed			
			Dispe	rsion: 4,0 (7,0)		

Checking values in brackets

9.84

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-1-400/117
- Test specifications approved by Scania on Aug. 18. 1983
- Start of fuel delivery-engine: DS 11-17° before TDC; DSI 11-16° before TDC
- Firing sequence, engine : 1-5-3-6-2-4
- ** Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 70 2,9 3,1 mm.

estoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

WPP 0J1/4 SCA 11,0 v 1 3. Edition

PE 6 P 120 A 720 RS 7004 RQ 1050 PA 528

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 686 750 015

supersede 5 · 83 company Saab-Scania DS 1143, DSI11 45

Komb.-Nr. 0 402 646 805

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Please note instructions on sheet 2.

A. Fuel Injection Pump Settings bis FD 052: 4,4-4,5 mm Port closing at prestroke (4,95-5,15)mm (from BDC) (4.35-4.55)

		• • • • • • • • • • • • • • • • • • • •	*			
Rotational speed	Control rod travel	Fuel delivery	Difference cm ¹ /	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min	mm	cm 1/100 strokes	100 strokes	mm	cm³/100 strokes	mm
!	2	3	4	2	3	6
1000	12,8+0,	21,4 - 21,6	0,6(0,9)			3,3 ± 0,1 (3,0-3,5)
						(3,0-3,5)
	-					
	1		1		1	
			•			
1	I	I	1	.L		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checkin	g of slider	Full-load	speed re	gulation		idle spe	ed regula	ation		Torque o	control
		Setting po	oint	Test spe	cifications	Setting p	point	Test spe	cifications		
rev/min	Control rod travel mm 2	rev/min	Control rod travel mm	rev/min 5	Control rod travel mm 6	rev/min	Control rod travel rmrn 8	rev/min	Control rod travel mm 10	rev/min	Control rod travet mm
•	-	-	-	11,8 4,0 1150	1098-1113		-	-	-	-	49

Torque control travel on flyweight assembly dimension a

Speed regulation At 1050-1055 min-1

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

	elivery on control lever p 40°C (104 F)	Control rod stop	Fuel deliv	ery characteristics	Starting	luel delivery
rev/min 1	cm*/- 1000 strokes	rev/min 3	rev/min	cm 1/- 1000 strokes 5	rev/min	cm³/100 strokes
1000	214,,0-216,0 (211,0-219,0)	-		idle speed ersion: 4,0 (7,0)	100	240 - 290 = 20,0 - 21,0 mm RW

Checking values in brackets

9.84

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-1-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on Aug. 18. 1983
- Start of fuel delivery-engine: DS 11-17° before TDC; DSI 11-16° before TDC
- Firing sequence, engine : 1-5-3-6-2-4
- ** Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 70 2,9 3,1 mm.

0

Test Specifications Fuel Injection Pumps 1 PP 001/4 SCA 11,0 w and Governors

2. Edition

PE 6 P 120 A 720 RS 7007

ROV 200-1000 PA 539-2

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 015

7A Fuel Injection Dumn Settings

supersedes 5.83

Scania company:

DSC 1101 engine: LKW 112

Komb.-Nr. 0 402 646 812

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Please note instructions on sheet 2.

Test JiHSO 4113

Port closing at pre		4,5 - 4,6 4,45-4,65)	mm (from 8DC)	= RW 6.0	0 - 8,0 mm	
Rotational speed rav/min		Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes	Control rod travel	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control velve)
700	14,7+0,	21,0-21,2	0,7(1,0)			3,3 [±] 0,1
225	4,4-4,6	1,4-1,8	0,3(0,6)			(3,0-3,5)

Adjust the fuel delivery from each outlet according to the values in g

B. Governor Settings

Upper rated s	speed			Intermediate	rated sp	eed	Lower rated	speed		Stiding	leeve traval
deflection	rev/min Control rod travel	Control rod travel mm rev/min	(2e)	Degree of deflection of control laver	rev/min	Control rod travel	Degree of deflection of control lever	rev/min	Control rod travel	rev/min	0
1	2	3		4	_	6	7	8	mm (3)	10	mm 11
max.	1040	15,2-17	,8	-	-	-	ca.10		min.5,9 4,4-4,6		0,5-0,8
ca. 62	13,7 4,0	1040-105 1165-119						310-3	370 = 2,0	720 1000	3,1-3,6 5,1-5,4 7,9
	1300	0-1,0					③	-			

Torque control travel a =

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		intermediate speed	high idle s	very characteristics (5a)	Starting Idle switchin		Torque- travel	Control rod
rev/min 1	cm³/1000 strokes 2	rev/min 49	rev/min 4	cm ³ /1000 strokes 5	rev/min 6	cm³/1000 strokes	rev/min	trave: mm
LDA 700	0,9 bar 210,0-212,0 (207,0-215,0)	1040-1050 *	LDA 1000 LDA 500	0,9bar 201,0-209,0 (199,0-211,0 0 bar 164,0-168,0 (162,0-170,0	100	240,0-290,0 = 20,0-21 mm RW		-

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

SCA 11,0 w -

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rod travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE6PRS 7007 +RQVPA539-2	0,42	0,90 0 0,30	14,0 - 14,1 14,7 - 14,8 11,8 - 11,9 12,4 - 12,6

Notes:

(1) when n =

rev/min and gauge pressure = bar (= maximum full-foad control rod travel)

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see YDT-1-400/116
- For sealing, see VDI-1-400/117
- Test specifications approved by Scania on Aug. 18. 1983
- Start of fuel delivery-engine: 22° before TDC at control-rod travel= 6.0-8.0 mm
- Firing sequence, engine
- 1-5-3-6-2-4
- ** Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted to 3.0 mm.

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 14,2 d

4. Edition

PE 8 P 120 A 920/4 LS 7008

RQV 200-950 PA 547-1

supersede 9.83
company: Scania
engine DSC 1401
Komb.-Nr. 0 402 648 807

 $1 - 2 - 7 - 3 - 4 - 5 - 6 - 8 \text{ je} \cdot 45^{\circ} = 0.5^{\circ} (\pm 0.75^{\circ})$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Rotational speed	Control rod travel	Fuel delivery	Difference	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
rev/min 1	mm 2	cm ³ /100 strokes 3	cm ³ / 100 strokes 4	mm 2	cm ³ /100 strokes 3	mm 6
700	4,2+0,1	20,1-20,3	0,7(1,0)			3,3 = 0,1
225 Value	4,6-4,8 s only ar	1,4-1,8 ply to test no 901 019 and fi	0,3(0,6) zle-and-h	older		(3,0 - 3,5)

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated	speed			Intermediate	rated sp	eed	Lower rated	speed		Sliding	leeve travel
Degree of deflection of control	rev/min Control rod travel	11 4461	(9)	Degree of deffection of control		Control rod travel	Degree of deflection of control		Control rod travel	Siding a	①
lever	mm	rev/min	29	lever	rev/min	mm (4)	lever	rev/min	mm ③	rev/min	
max.	990	15,2-17,	Q	_	3	0	ca. 9	100	min.5,9	150	0,5-0,9
			-	_				100	1111.0,5	130	0,5-0,5
ca. 60	3,2 4,0	990-100 1115-114	-					250	4,4-4,6	420	3,0-3,5
	250	0-1,0						310-3	70 = 2,0	680 950	4,8-5,1 7,4
							3				

Torque control travel a = - m

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load d Control-ro Test oil ter		Rotational-speed 2b limitation intermediate speed	Fuel deli high idle :	very characteristics (5e peed (50)	Idle	fuel delivery 6	Torque- travel	Control rod
rev/min 1	cm ³ /1000 strokes .	rev/min 4a	rev/min 4	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	travel mm
LDA 700	0,9 bar 201,0-203,0 (198,0-206,0)	990-1000*	LDA 950	0,9 bar 194,0-202,0 (192,0-204,0)		250,0-300,0 = 20,0-21,0 mm RW	-	-
			LDA 500	0 bar 156,0-160,0 (154,0-162,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.84

BOSCH

D. Adjustment Test for Manifold Pressure Compensator

SCA 14,2 d

- 2 -

Testatn =

500

rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	diminution Control rad travel- difference
	Gauge pressure = bar	Gauge pressure = bar	mm (1) .
PE 8 PLS 7008	0,90		14,2 - 14,3
+ RQVPA 547-1		0	11,5 - 11,6
		0,35	13,6 - 13,7
		0,24	12,1 - 12,3
		·	

Notes

(1) when n =

rev/min and gauge pressure = bar (= maximum full-load control rod travel)

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-1-400/116
- For seal<u>i</u>ng, see VDT-1-400/117
- Test specifications approved by Scania on Aug. 18. 1983
- Start of fuel delivery-engine: 22° before TDC at control-rod travel= 6,0-8,0 mm
- Firing sequence, engine : 1-5-3-6-2-4
- ** Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted to 3.0 mm.

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 ROL 12,2 c

1. Edition

PE 6 P 120 A 720 RS 7012 RQV 250-1000 PA 714 Komb.-Nr. 0 402 646 820 Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes_

company: Rolls Royce engine. Eagle 3 253 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at pres	troke	5,0-5,1 (4,95-5,15)	mm (from BDC)	(from BDC) RW = 9.0-12.0 mm							
Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Difference cm ³ / 100 strokes 4	Control rod travel mm 2	Fuel delivery cm ³ /100 strokes 3	Spring pre-tensioning (torque-control valve) mm					
700 250	13,6+0,1 4,4-4,6		0,6(0,9) 0,3(0,6)			3,3 [±] 0,1 (3,0-3,5)					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated: Degree of deflection of control lever 1	rev/min	Control rod travel mm rev/min 2e	Intermediate Degree of deflection of control lever		Control rod travel mm 4	Lower rated Degree of deflection of control lever 7	speed rev/min 8	Control rod travel mm 3	Sliding a	mm
max. ca. 60	1000 12,6 4,0 1300	15,2-17,8 1040-1050 1160-1190 0-1,0	-	•	-	ca. 10	100 250 310-3	min.5,9 4,4-4,6 370=2,0		1,0-1,2 3,4-3,9 5,2-5,4 7,9

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

	nd stop mp. 40°C (104°F) 2	limitation intermediate speed	high idle s		Idle	fuel delivery 8	Torque- travel	Control root
rev/min	cm³/1000 strokes	rev/min	rev/min	cm ³ /1000 strokes	rev/min	cm ³ /1000 strokes	rev/min	
LDA 700	0,9 bar 209,0-211,0 (206,0-214,0)	1040-1050*	LDA 1000 LDA 500	0,9 bar 203,0-211,0 (201,0-213,0 0 bar 160,0-164,0 (158,0-166,0	250	240,0-290,0 =20,0-21,0 mm RW 13,0-17,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

D. Adjustme Test for Manifold Pressure Compensator

ROL 12,2 c

-2-

Test at n =

500

rev/min decreasing pressure - in bar gauge pressure

D	loaning.		Massusment	diminution
Pump/governar	Setting		Measurement	Control rod travel-
	Gauge pressure	bar	Gauge pressure " bar	mm (1)
PE 6 PRS 7012	0,90			13,6-13,7
+RQVPA 714			0	11,6-11,7
			0,42	12,8-12,9
			0,29	11,9-12,1
				•
				-
			l	

Notes

(1) when n

rev/min and gauge pressure =

bar (> maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (A) and Governors

40

WPP 001/4 SCA 11.0 z 1

1. Edition

Εn

PE 6 P 120 A 720 RS 7013 RSV 350-1100 P 1/481 Komb.-Nr. 9 400 087 310 Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes Company engine D SE 11

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

T

5,0-5,1 (4,95-5,15)

mm (from BDG) RW = 9,0-12,0 mm

Rotational speed ray/min	Control rod travel	Fuel delivery	Difference cm ^{-y} 100 strokes	Control rod travel	Fuel delivery	Spring pre-tensioning (torque-control valve)
1	2	3	4	mm 2	cm /100 strokes	mm 6
100	15,0+0,1	26,3-26,5	0,6(0,9)			3,3 [±] 0,1
350	5,4-5,6	4,3-4,7	0,3(0,6			(3,0-3,5)
	ļ					
				<u> </u>		

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

	r rated speed Control rod travel mm		Interme	diate rated	speed	Control- lever deflection in degrees 7		rated speed Control rod travel mm	3 To	rque control Control rod travel mm
loose	800 x =	0,3-1,0	-	-	-	ca.30	350	5,0	-	~
ca.64	14,0 4,0 1250	1040-1050 1130-1160 0,3-1,7					350 480-5	5,4-5,6 30=2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

9	ull-load stop emp_40°C (104°F)	6 Rotational- speed limitat		uel delivery Paracteristics	Starting Idle	fuel delivery 5	4a Idi	e stop
rev/min	cm ¹ /1000 strokes	Note changed to) rev/min 3	rev/min 4	cm ^{1/} 1000 strokes 5	rev/min	cm /1000 strokes	rev/min 8	Control rod travel mm
1000	263,0-265,0 (260,0-268,0)	1040-1050*	700	265,0-273,0 (261,0-275,0)	100	300,0-350 =20,0- 21,0 mm RW	,0 350	5,5

Checking values in brackets

* 1 mm less control rod travel than col 2

BOSCH

Geschaftsbereich KH. Kundendienst. Klz-Ausrustung. - 1980 by Robert Bosch GmbH. Postlach 50. D-7000 Sluttgart 1. Printed in the Federal Republic of Germany. Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH. Testoil-ISO 4113

Test specifications **Fuel injection pumps** and governors En.

WPP 001/4 MTU 31.7 q 1

1. Edition

PE 8 ZWM 160 / 100 RS 2001

Komb.-Nr. 0 406 008 023

8-4-5-6-3-1-2-7

 $0-45-90-135-180-225-270-315^{\circ} \pm 0.5^{\circ} (\pm 0.75^{\circ})$

Please note instructions on sheet 2.

Replaces

Firm:

Engine:

8 V 396-03

960 kW

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

2,5-2,6(2,45-2,65) mm (from BDC7y)

Rotational	Control-	Fuel delivery	Difference	Fuel delivery	Spring pre-tension (torque-control
speed	rod travel	Average value	in fuel delivery	Checking values	valve)
min 1	mm	cm ³ /1000 strokes	cm ³ /1000 strokes	cm ³ /1000 strokes	
1	2	3	4	5	
1000	18,0	622-636	20 (30)	619-639	
1000	9,0	220-248	28 (42)	215-253	
300	9,0	104-128	16 (24)	99-133	

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated	speed		Medium ra	ted spe	ed	Lower rat	ed spec	d	Torqu	e control
Control lever deflection degrees 1	mm min ' 2	Control- rod travel mm min 1 3	Control lever flection degrees 4	min ¹ 5	Control- rod travel mm 6	Control lever de- flection degrees 7	min '	Control- rod travel mm 9		Control- rod travel mm 11
-	-	-	•	•	9	•	•	-		•

Torque control travel a -

Speed regulation: At

1mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

cm ³ /1000 strokes 7
-
7

Checking values in brackets

9.84

Note:

The fuel-injection pump has a special control rod for the partial cutoff of certain cylinders.

Control-rod travel "0" corresponds to 1.0 mm distance of the control-rod pot from the face-side stop plate.

Testoil-ISO 4113

Test specifications **Fuel injection pumps** and governors En.

WPP 001/4 MTU 47,5 g

1. Edition

PE 12 ZWM 160/100 RS 2003

Replaces

·Komb.-Nr. 0 406 000 008

MTU Firm:

12- 9- 4- 5- 8 - 11- 2 - 3 - 10- 7 - 6 - 1 0-15-60-75-120-135-180-195-240-255-300-315° ± 0,5° (±0,75°)

12 V 396-03

Engine:

1440 kW

Please note instruc-

tions on sheet 2. All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Port closing at prestroke (2.45 - 2.65)mm (from BDC)7v1 _ 42

	(2,43-2,03)			
Control- rod travel	Fuel delivery Average value	Difference	Fuel delivery Checking values	Spring pre-tension (torque-control valve)
mm	cm ³ /1000 strokes	cm ³ /1000 strokes	cm ³ /1000 strokes	
2	3	4	5	
18,0	622-636	20 (30)	619-639	-
9,0	220-248	28 (42)	215-253	3
9,0	104-128	16 (24)	99-133	
9,0	104-128	16 (24)	99-135	
	rod travel mm 2 18,0 9,0	Control- rod travel mm cm³/1000 strokes 2 3 18,0 622-636 9,0 220-248	Control- rod travel Average value in fuel delivery mrn cm ³ /1000 strokes 2 3 4 cm ³ /1000 strokes 4 20 (30) 9,0 220-248 28 (42)	Control- Fuel delivery Difference Fuel delivery Checking values cm ³ /1000 strokes 2 2 3 2 2 2 2 2 2 2

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated	d speed		Medium rated speed			Lower rat	Torq	ue control		
Control lever deflection degrees	mm min ¹ 2	Control- rod travel mm min 1 3	Control lever flection degrees 4	min ' 5	Control- rod travel mm 6	Control lever de- flection degrees 7	min - 1 8	Control- rod travel mm 9	min 10	Control- rod travel mm 11
-	-	-	-	•	-	-	•	•		-

Torque control travel a -_

Speed regulation: At

1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

on gove	ernor control lever it temperature 40°)	Control rod stop at speed	Fuel-de charact			Starting fuel delivery		
min ' 1	cm ³ /1000 strokes 2	min 1 .3	min-1 4	cm ³ /1000 strokes 5	min-1 6	cm ³ /1000 strokes 7		
ldjust ;he er	according to gine records-		-	. •	-	•		

Checking values in brackets

L14

Note:

The fuel-injection pump has a special control rod for the partial cutoff of certain cylinders.

Control-rod travel "0" corresponds to 1.0 mm distance of the control-rod pot from the face-side stop plate.

Testoil-ISO 4113

Test specifications Fuel injection pumps and governors

WPP 001/4 MTU 23,7 a 1

1. Edition

PE 6 ZWM 160/100 RS 2004 Komb.-Nr. 0 406 006 034

Replaces

Firm:

6 V 396-03

6- 1- 2 - 3 - 4 - 5 0-75-120-195-240-315° ± 0,5° (± 0,75°)

720 kW

Please note instruc-

tions on sheet 2. All lest specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

Control-	Fuel delivery	Difference	Fuel delivery	Spring pre-tension
rod travel	Average value	in fuel delivery	Checking values	(torque-control valve)
mm 2	cm³/1000 strokes 3	cm ³ /1000 strokes 4	cm ³ /1000 strok e s 5	
18,0	622-63 6	20 (30)	61 9-639	
9,0	220-248	28 (42)	215-253	
9,0	104-128	16 (24)	99-133	
	control- rod travel mm 2 18,0	Control- rod travel mm cm³/1000 strokes 2 3 18,0 622-63 6 9,0 220-24 8	rod travel Average value in fuel delivery cm³/1000 strokes 2 cm³/1000 strokes 4 cm³/1000 strokes 4 20 (30) 29,0 220-248 28 (42)	Control- rod travel Average value in fuel delivery Checking values cm³/1000 strokes 2

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated Control lever deflection degrees	mm min	Control- rod travel mm min	Medium ra Control lever flection degrees	min 1	Control- rod travel mm	Lower radicontrol lever de- lection degrees	min ¹	Control- rod travel mm	min	control Control- rod travei mm
-	-	-	-	5	6	7	-	9	10	-
						Ž				

Torque control travel a -

mm

Speed regulation: At

1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

on gov	nd delivery ernor control lever il temperature 40°)	Control rod stop at speed	Fuei de charec	elivery leristics 1	Starting fuel delivery			
min '	cm ³ /1000 strokes 2	min ¹ 3	min ¹	cm ³ /#000 strokes 5	min '	cm ³ /1000 strokes 7		
Adjus	t according to engine records-	- ,	-	-	-	-		

Checking values in brackets

Note:

The fuel-injection pump has a special control rod for the partial cutoff of certain cylinders.

Control-rod travel "0" corresponds to 1.0 mm distance of the control-rod pot from the face-side stop plate.

WPP 001/4 MTU 47,5 f

1. Edition

PE 12 ZWM 160/100 RS 2005 Komb.-Nr. 0 406 000 009

Replaces

Firm:

12 V 396-03

12- 9- 4- 5- 8 - 11- 2 - 3 - 10- 7 - 6 - 1 0-15-60-75-120-135-180-195-240-255-300-315° ± 0,5° (± 0,75°)

Engine:

1440 kW

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump6settings

Please note instructions on sheet 2.

Port closing at prestroke (2,45-2,65)

mm (from BDEY1. 12

speed min 1	rod travel	Average value cm ³ /1000 strokes	Difference in fuel delivery cm ³ /1000 strokes	Fuel delivery Checking values cm ³ /1000 strokes 5	Spring pre-tension (torque-control valve)
1000	18,0	622-636	20 (30)	619-639	
1000	9,0	229-248	28 (42)	215-253	İ
300	9,0	104-128	16 (24)	99-133	
				1	
		<u> </u>			ł

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated	speed		Medium rated speed			Lower rated speed			Torque control		
Control tever deflection degrees 1	mm min ' 2	Control- rod travel mm min 1 3	Control lever flection degrees 4	min ' 5	Control- rod travel mm 6	Control lever de- flection degrees 7	min ¹ 8	Control- rod travel mm 9	min 10	Control- rod travel mm	
-	•	-	-	-	-	•	•	-	-	-	

Torque control travel a =

Speed regulation: At

1mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

on gove	d delivery ernor control lever I temperature 40")	Control rod stop at speed	Fuel-de charact		Startin deliver	
min 1 cm²/1000 strokes 1 2		min 1 3	min '	cm³/1000 strokes 5	min ' 6	cm ³ /1000 strokes 7
Adjus the e	t according to ngine records-		-	•	-	•

Checking values in brackets

9.84

Note:

Control-rod travel "0" corresponds to 1.0 mm distance of the control-rod pot from the face-side stop plate.

40

WPP 001/4 MTU 31,7 h

1. Edition

PE 8 ZWM 160/100 RS 2006 Komb.-Nr. 0 406 008 018

8- 4- 5- 6 - 3 - 1 - 2 - 7 0-45-90-135-180-225-270-315° ± 0.5° (± 0.75°) Replaces _

Firm: MTU

Engine: 8 V 396-03

960 kW

All test specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

2,5-2,6 at prestroke (2,45-2,65) mm (from BDG)v1 Please note instructions on sheet 2.

Port closing a	t prestroke	(2.45-2.65)	mm (from BDGV1.	. 8	cions on sheet 2.
Rotational speed min	peed rod travel Averag		delivery Difference age value in fuel delivery 1000 strokes cm ³ /1000 strokes		Spring pre-tension (torque-control valve)
1	2	3	4	5	
1000	18,0	622-636	20 (30)	619-639	•
1000	9,0	220-248	28 (42)	215-253	
300	9,0	104-128	16 (24)	99-133	

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated	speed		Medium ra	ted spe	ed	Lower ra	ed spee	d	Torqu	e control
Control lever deflection degrees 1	mm min ' 2	Control- rod travel mm min ! 3	Control lever flection degrees 4	min '	Control- rod travel mm 6	Control lever de- flection degrees 7		Control- rod travel mm 9	min '	Control- rod travel mm 11
•	•	•	•	•	-	-	-	-	-	

Torque control travel a =

mm

Speed regulation: At

1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

on gov	d delivery ernor control lever Il temperature 40°)	Control rod stop at speed	Fuel-de charact		Starting fuel delivery		
min ' 1	cm ¹ /1000 strokes 2	min ' 3	min 1	cm ³ /1000 strokes 5	min '	cm ³ /1000 strokes 7	
	t according to ngine records-						
60 1 A							

Checking values in brackets

9.84

BOSCH

Note:

Control-rod travel "0" corresponds to 1.0 mm distance of the control-rod pot from the face-side stop plate.

L21

estoil-ISO 4113

Test specifications Fuel injection pumps and governors

WPP 001/4 MTU 63,4 d

1. Edition

PE 8 ZWM 160/100 RS 2007 Komb.-No. 0 406 008 019

8- 1- 2- 4 - 5 - 6 - 3 - 7 0-45-90-135-180-225-270-315° ± 0,5° (± 0,75°) Replaces _

Firm: MTU Engine: 16 V 396-03

1920 kW

Please note instruc-

All lest specifications apply only to Bosch fuel-injection pump test benches and equipment

A. Fuel-injection-pump settings

it prestroke	(2,45-2,65)	mm (from BDCZyl. 8						
Control- rod travel mm 2	Fuel delivery Average value cm ³ /1000 strokes 3	Difference in fuel delivery cm ³ /1000 strokes 4	Fuel delivery Checking values cm ³ /1000 strokes 5	Spring pre-tension (torque-control valve)				
18,0	622-636	20 (30)	619-639					
9,0 9,0	220-248 104-128	28 (42) 16 (24)	215-253 99-133					
	Control- rod travel mm 2 18,0	Control-	Control-	Control-				

Adjust the fuel delivery from each outlet according to the values in

B. Governor settings

Upper rated	speed		Medium ra	ted spe	ed	Lower ra	ed spee	Ú	Torqu	e control
Control lever deflection degrees 1	mm min ' 2	Control- rod travet mm min - 3	(30ntrollever) flection degrees 4	min ¹ 5	Control- rod travel mm 6	Control lever de- lection degrees 7	min '	Control- rod travel mm 9	min ' 10	Control- rod travel mm 11
-	•	-	•	•	-	-	•	-	_	-

Torque control travel a =

mm

Speed regulation: At

1 mm less control rod travel

C. Settings for fuel-injection pump with fitted governor

Full-load delivery on governor control lever (Test oil temperature 40°)		Control rod stop at speed		Fuel-delivery characteristics		Starting fuel delivery	
min '	cm ³ /1000 strokes 2	min 1 3	min ¹ 4	cm ³ /1000 strokes 5	min '	cm³/1000 strokes 7	
	according to gine records-	-	•	•	-	-	

Checking values in brackets

9.84

BOSCH

Note:

The fuel-injection pump has a special control rod for the partial cutoff of certain cylinders.

Control-rod travel "0" corresponds to 1.0 mm distance of the control-rod pot from the face-side stop plate.